

Academic Portfolio - Phillip Tretten

Executive Summary

- **Associate Professor in Operation and Maintenance Engineering at LTU**
- **Documented Scientific Qualifications**
 - Google Scholar: 600+ citations, h-index 14, i10-index 17
 - International Journals with peer-review: 24
 - International Conferences with peer-review: 35
 - Book chapter with peer review: 4
- **Documented Qualified Teaching Skills**
 - Distinguished University Teacher - 2021
 - Taught 30+ courses on basic and advanced levels
 - Developed 17 courses for bachelor's and master's programs
 - Supervised and examined 25+ Master's and bachelor's thesis projects
 - Developed 10+ Bachelors and master's programs
 - International Pedagogical Conference papers with peer-review: 5
 - 21 ECTS in pedagogy
- **Demonstrated Experience of Qualified Supervision**
 - Main supervisor: Niklas Olsson (2024); Angelo Compierchio (PhD 2024); Dr. Prasanna Illakoon (PhD 2020)
 - Co-advisor PhD: Parul Khanna (2027), Dr. Ravdeep Kour (PhD 2020), Dr. Esi Saari (PhD 2020); Dr. Liangwei Zhang (2017); Dr. Mustafa Aljumaili (2016)
 - Co-advisor Licentiate: Lic. Yamur Aldouri (2016)
- **Exhibited Ability and Proficiency in Attracting External Research Funding**
 - International project: H2020-MSCA-ITN, FP7 IMAIN, H2020 Shift2Rail, H2020 Shift2Rail2
 - National projects: Vinnova NFFP6, SIP STRIM,
 - Industrial projects: Trafikverket, LKAB, Vattenfall, Komatsu Forest
 - Educational projects: LKAB, Northvolt, SIPStrim, Arbetsförmedlingen
- **Exhibited Collaborative and Leadership Abilities**
 - Distinguished University Teacher - 2021
 - Head of Education 2017-2022
 - Deputy Head of Department, 2017-2022
 - Deputy Head, Centre for Maintenance and Industrial and Services, 2015-2019
 - Program Coordinator MSc Maintenance Engineering, 2014-2017
 - Program Coordinator BSc Maintenance Engineering, 2011-2017
 - LTU PhD student Union Board, 2006-2010
 - LTU Faculty Board, 2009-2010
 - LTU Teachers Union Board, 2006-2008

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Personal Information

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January 15, 1970

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<https://www.ltu.se/staff/p/phitre-1.12931?l=en>

Present Employment

Title: Associate Professor/ Docent, Deputy Head of Dept, Head of Education

Subject Area: Operation and Maintenance

Placement: Luleå University of Technology, Sweden

Employment from: June 2011

Previous Employment

Luleå University of Technology (2006 –)

SSAB, Luleå (2005)

Tretten bygg, Luleå (2003-2005)

Luleå Industrimontage AB, Luleå (1999-2003)

Finnmark Mur og Puss AS, Norway (1996-1999)

Ace/Avant Concrete Construction Inc, USA (1994-1996)

Niematalo Builders Inc, USA (1992-1994)

Tretten Construction Inc, USA (1986-1992)

1. Higher Education Degrees and Evaluations

1.1.Docent

- Docent in Operation and Maintenance Engineering, May 2018 (see appendix A)

1.2.Licentiate and PhD Degree

- Doctor of Philosophy in Industrial Design, May 2011 (see appendix B)
- Licentiate of Technology in Industrial Design, Dec 2008 (see appendix C)

1.3.Undergraduate and Graduate Degrees

- Master of Science in Engineering Psychology, June 2005 (see appendix D)
- Bachelor of Science in Psychology, May 1992 (see appendix E)

1.4.Professor Competence

- Evaluated and approved for Professor Royal Institute of Technology, Sweden, 2017

1.5.Additional Information

- Course on setting wages, LTU 2020
- Employment law, LTU 2020
- Entrepreneurship in Education at LTU, 2010

2. Scientific Merits

2.1. Research Profile

My profile as a researcher consisted of learning how to identify and reduce risk in maintenance tasks. Maintenance decisions are made based upon the information communicated to them, either through individuals, documentation or one of the many systems connected to the equipment. During my PhD, I worked on designing instrumentation in vehicles so that the drivers could experience necessary, and even unnecessary, information as pleasurable and safe. Today, I work with information and how it is to be communicated to the user so that the operators/technicians get the right information at the right time so that they can make the right maintenance decisions. Simply stated, reducing the risk for human error.

My present research profile builds upon the expressed need for better understanding of maintenance risks using the maintenance systems, e.g. Human Machine Interaction (HMI) of the systems. More specifically, I've focused upon the development of guidelines for maintenance systems, to assist operators and maintenance personnel in their decisions. First, by risk analysis and, secondly, recommending and testing development opportunities. The overall goal has been to assist maintenance technicians with easy to use interfaces supporting their knowledge and need for the right information, in the right context, at the right time. This work has focused upon gaining tacit knowledge from the users of the system, that is, learning from them what they already know about, and can communicate it clearly.

Since I've conducted research in the area of eMaintenance, the use of Information Technology in Maintenance, I've focused on the how the user obtains and uses the information presented to them, through the user-interface. This work has included user studies concerning present and future needs in computer interfaces, personal handheld devices, and Augmented Reality devices. These studies have sought to gain both tacit and implicit knowledge from the users. I've measured their performance, their intentions, and tacit knowledge.

This work has included testing different possibilities for solutions in the process industry, air force, manufacturing industry, infrastructure owners, and railway operators. Since many mobile solutions fulfil present user demands, the opportunities for improvement are now moving to Augmented Reality (AR) and Virtual Reality (VR) solutions. As a user interface, I've developing a working Google Glass demonstrator to test usability of Augmented Reality in aircraft maintenance. Work with these types of applications concern both, how to improve maintenance actions by allowing the technology to become less obtrusive and more transparent. The user should be able to use it without it getting in the way of their work, of which is not true today. I've continued to test AR and VR solutions as parts of larger projects and coordinated student projects to test these solutions when they don't fit within a

project framework. If we are to lead the field in usability of maintenance solutions we need to be on the leading edge of research. That's why I've analysed the usability of Google Glass, Oculus Rift, and even analysed Microsoft Kinect as a physical ergonomic evaluation tool.

Many of the tested applications result usability guidelines, which are being used in the industry today. Two of these examples are the Graphical User Interfaces (GUI) for railway and forming presses. In continuation, I have begun focus more on the use of knowledge in the maintenance context. How both taught skills (tacit knowledge) and untaught skills (intuition) are necessary for maintenance expertise, and how this knowledge can be transferred to expert systems.

2.2.Planned Research Activities

My planned research activities focus upon developing a group that will assist in implementing the human factors approach to maintenance. More specifically I will continue to focus upon how tacit knowledge, from maintenance technicians, can be learned and applied in intelligent systems. Since, the future is leading towards Autonomous Maintenance, must technical systems and the physical maintenance actions harmonized so to complement each other. This means that the human actions are contextualized. So that both explicit and implicit knowledge, which are necessary for one to become an expert maintenance technician, can be learned for next generation solutions. For example, only explicit knowledge is enough for clear-cut maintenance situations, where only "following the instructions" is enough to complete the task sufficiently. In this case can anyone who can follow instructions could complete the task. What differentiates the expert from the others is their ability to use implicit knowledge, making expert decisions based upon knowledge from other real-world experiences and "gut" feelings.

There are several attempts being made to elicit tacit knowledge, knowledge that is difficult to transfer, which includes Augmented Reality/Virtual Reality and the Trusted Intuition Network. Both of these methods use Artificial Intelligence to analyse the individuals' actions in a controlled environment. The problem with this is that the controlled environments also limit the individuals thought processes, and ability to elicit their intuitive cognition. Therefore, my aim is to critically assess how human explicit and implicit knowledge is used in maintenance actions, to determine what factors contribute to performance and efficiency. I have identified two major opportunities in which human intuitive cognition can collaborate with intelligent systems for maintenance solutions; through implicit situation awareness measurement techniques, using cognitive task, and the integration of collaboration concepts in the design of automated systems (see Figure 1).

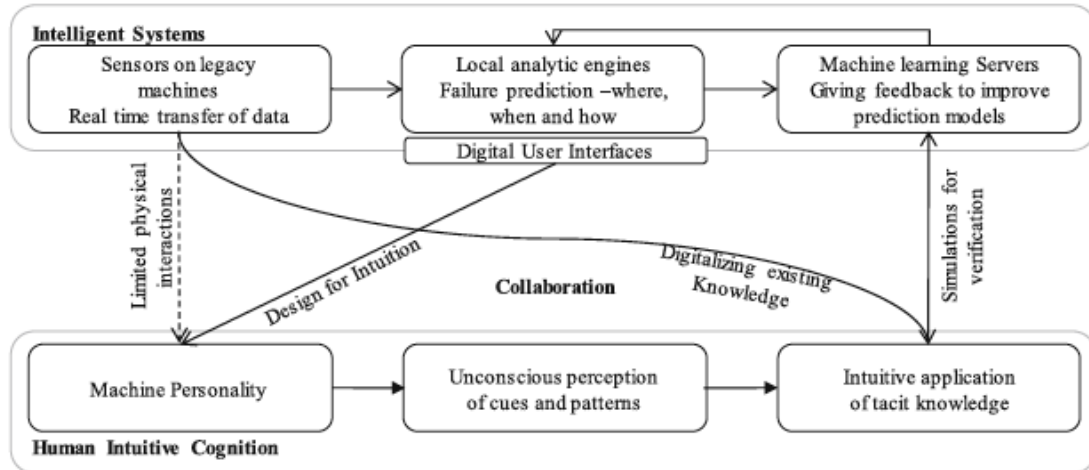


Figure 1. Intelligent Systems-Intuitive Cognition (IS-IC) collaboration concept for maintenance.

In further, I will continue to develop and refine the Intelligent Systems-Intuitive Cognition (IS-IC) model through empirical studies. Presently I have one PhD student working with this model and am working on refining the implicit situation awareness measurement technique for maintenance specific tasks. The empirical study is to explore the intuitive cognition phenomena, to contribute to refine the theoretical foundation as well as to improve the human cognition taxonomy.

The long-term goal of this type of research is to obtain the acquisition and transfer of tacit maintenance knowhow, from legacy systems to intelligent systems. I see an untouched potential of simulation for digital training using Virtual Reality solutions, not only for humans to gain skills but also for intelligent systems to learn from human intuitive interactions. Therefore, I hope that the exploration of the opportunities of integrating these methods will be fruitful strategy in digitalizing human intuitive cognition.

There is much work to be done and to build upon this I need to get more support in this research. The first step would be to continue with Master's thesis projects, the second would be to obtain long-term financing for PhD students, and thirdly, recruit more support from other groups. Presently, I'm working on this by actively networking with experts in the field, participating in conferences, building industry contacts, and acting as a reviewer in both conferences and journals.

Since, my long-term strategy is to build a solid group I've taken some steps in this process. I've chosen to be active in proposal writing, working within my personal network. This year thus far I've participated with KU Leuven in a Marie Curie PhD proposal, with Idener, Spain concerning Industry 4.0, Trafikverket H2020 Shift2Rail, and Vattenfall. More specifically, all this work is aimed at improving the methods designed for maintenance decision-making system. My intentions are to continue

apply for funding for interdisciplinary research between Operation and Maintenance Engineering and Human Factors and build a research group in this area.

2.3. List of Publications

Peer reviewed Publications in International Journals

1. Grafte, L., Laurent, E., Tretten, P. & Risberg, A. (under review). A literature review of recovery and cortisol among military personnel. *Military Medicine*, Oxford University Press, Oxford, UK.
2. Illankoon, P., Kulatunga, A., Tretten, P. and Pathirathna, A. (in press). Strategic Asset Management of a Heterogeneous Locomotive Fleet for publication, *Int. J. of Strategic Engineering Asset Management*.
3. Illankoon, P. & Tretten, P. 2021. 'Collaborating AI and human experts in the maintenance domain', *AI & Society: The Journal of Human-Centred Systems and Machine Intelligence*, pp. 1-12.
4. Singh, S. & Tretten, P. (2020). Operator 4.0: Within the Framework of Industry 4.0. In: *Applications and Challenges of Maintenance and Safety Engineering in Industry 4.0* (ed) Alberto Martinetti; Micaela Demichela; Sarbjeet Singh, IGI Global, 2020, pp. 120-133.
5. Teymourian, K. Tretten, P. & Galar, D. 2020. Ergonomics Evaluation in Designed Maintainability: Case Study using 3 DSSPP, *Energies* 2020, 13(x).
6. Illankoon, P. & Tretten, P. 2020. 'Judgemental errors in aviation maintenance'. *Cognition, Technology & Work*, 22(4), 769-786.
7. Illankoon, P., Tretten, P., Kumar, U. 2019. 'A Prospective Study of Maintenance Deviations using HFACS-ME'. *International Journal of Industrial Ergonomics*, 74.
8. Kour, R., Al-Jumaili, M., Karim, R. & Tretten, P. 2019. 'eMaintenance in Railways: Issues and challenges in cybersecurity' *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit*, 0, 0, pp. 1-11.
9. Tretten, P. & Normark, J. 2019. 'Guidelines for a mobile tool to address human factors issues in aircraft maintenance'. *International Journal of Human Factors and Ergonomics*, 6(3), 208-226.
10. Illankoon, P., Manathunge, Y., Tretten, P., Abeysekara, J., & Singh, S. 2019. 'Lockout and Tagout in a Manufacturing Setting from a Situation Awareness Perspective'. *Safety*, 5(2), 25.
11. Illankoon, P., Tretten, P. 2019. 'Judgemental errors in aviation maintenance. *Cogn Tech Work*', doi:10.1007/s10111-019-00609-9
12. Illankoon, P., Tretten, P., & Kumar, U. 2019. 'Modelling human cognition of abnormal machine behaviour'. *Human-Intelligent Systems Integration*, 1(1), 3-26.
13. Al-Jumaili, M., Karim, R. & Tretten, P. 2018. 'Data quality assessment using multi-attribute: Maintenance perspective. *Int Journal of Information and Decision Sciences*, 10, 2, pp. 147-161.

14. Illakoon, P., Tretten, P. & Kumar, U. 2018. 'Identifying significance of human cognition in future maintenance operations' *Advances in Intelligent Systems and Computing*, 722, 550-556.
15. Parida, A. & Tretten, P. (2017). 'Condition Monitoring and Diagnosis of Modern Dynamic Complex Systems using Criticality aspect of Key Performance Indicators' *Int. J. of COMADEM*, 20, 1, pp. 35-39.
16. Aljumaili, M., Karim, R. & Tretten, P. 2016. 'Metadata-Based Data Quality Assessment' *V I N E Journal of Information and Knowledge Management Systems*.
17. Aldouri, Y., Tretten, P. & Karim, R. 2016. 'Improvement of Railway Performance: A Study of Swedish Railway Infrastructure' *Journal of Modern Transportation*, pp. 1-16.
18. Aljumaili, M., Karim, R. & Tretten, P. 2016. 'Quality of Streaming Data in Condition Monitoring Using ISO 8000' *Current Trends in Reliability, Availability, Maintainability and Safety: An Industry Perspective*. Kumar, U., Ahmadi, A., Kumar Verma, A. & Varde, P. (Ed.). Springer, pp. 703-715. (Lecture Notes in Mechanical Engineering).
19. Al-Jumaili, M., Karim, R., Wandt, K. & Tretten, P. 2015. 'eMaintenance Ontologies for Data Quality Support' *Journal of Quality in Maintenance Engineering*, 21, 3, pp. 358-374.
20. Tretten, P. & Karim, R. 2014. 'Enhancing the usability of maintenance data management systems' *Journal of Quality in Maintenance Engineering*, 20, 3, pp. 290-303.
21. Kour, R., Tretten, P. & Karim, R. 2014. 'eMaintenance solution through online data analysis for railway maintenance decision-making' *Journal of Quality in Maintenance Engineering*, 20, 3, pp. 262-275.
22. Morant, A., Karim, R., Tretten, P. & Larsson-Kråik, P-O. 2013. 'Dependability improvement through configuration management: A study of railway signalling systems' *International Journal of COMADEM*, 16, 4, pp. 31-40.
23. Aljumaili, M, Tretten, P, Karim, R & Kumar, U. 2012, 'Study of aspects of data quality in eMaintenance' *International Journal of COMADEM*, 15, 4, pp. 3-14.
24. Oghazi, P, Jung, M-L, Peighambari, K & Tretten, P. 2009, 'What makes people want to become self-employed?: Applying the theory of planned behavior' *Advances in Management*, 2, 11, pp. 9-18.

Book Chapters

1. Compierchio, A., Tretten, P. & Illankoon, P. (2023). *Augment-Me: An Approach for Enhancing Pilot's Helmet-Mounted Display Visualization for Tactical Combat Effectiveness and Survivability*. In *Applications of Augmented Reality – Current State of the Art* (ed.) Pierre Boulanger, IntechOpen.

2. Karim, R., Tretten, P. & Kumar, U. (2018). eMaintenance. In Myeongsu Kang and Michael G. Pecht (Ed.) *Prognostics and Health Management of Electronics: Fundamentals, Machine Learning, and the IoT* (pp. 73-101).
3. Illankoon, P., Tretten, P. & Kumar, U. (2017). Identifying Significance of Human Cognition in Future Maintenance Operations. In (Eds.) Karwowski, W. & Ahram, T., *Intelligent Human Systems Integration, Advances in Intelligent Systems and Computing* 722, 550-556.
4. Tretten, P. & Gärling, A. 2011, 'Warnings and instrument design layout'. D Hennessy (Editor), *Traffic psychology: an international perspective*. Nova Science Publishers, Inc., New York, pp. 303-320. *Psychology research progress*

Peer reviewed Conference Publications

1. Compierchio, A., Tretten, P., Solomon, O. & Karagiannis, C. (2023). Assistive VR platform design for Telemanipulation at the Super Fragment Separator Facility. In *Human Interaction and Emerging Technologies (IHET-AI 2023): Artificial Intelligence and Future Applications: Proceedings of the 9th International Conference on Human Interaction and Emerging Technologies: Future Applications (IHET – AI 2023)*, April 13-15, 2023, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland / (ed) Ahram, T., Taiar, R., AHFE International , 2023, s. 186-197.
2. Compierchio, A. and Tretten, P. (2022). Human Factors Evaluation of Shared Real and Virtual Environments, In *Human Interaction, Emerging Technologies and Future Systems V: Proceedings of the 5th International Virtual Conference on Human Interaction and Emerging Technologies, IHET 2021, August 27-29, 2021 and the 6th IHET: Future Systems (IHET-FS 2021), October 28-30, 2021, France* [ed] Tareq Ahram; Redha Taiar, Springer, 2022, s. 745-751.
3. Compierchio, A. and Tretten, P. (2022). Quantum Reality Perspectives in Dyadic Interactions. In *Human Interaction & Emerging Technologies (IHET 2022): Artificial Intelligence & Future Applications* / [ed] Tareq Ahram, Redha Taiar, AHFE Open Access , 2022, Vol. 68, s. 510-517
4. Tretten, P., Illankoon, P. & Candell, O. (2021). Digitalization of Railway Maintenance: A Situation Awareness Perspective. In *International Conference on Applied Human Factors and Ergonomics: AHFE 2021: Advances in Human Factors and System Interactions*, Springer, 2021, Vol. 265, pp. 202-209.
5. Kour, R., Tretten, P., Karim, R. & Singh, S. (2019). Cybersecurity Workforce in Railway: A Case Study. In *Proceedings of the 5th International Workshop and Congress on eMaintenance: eMaintenance: Trends in Technologies & methodologies, challenges, possibilities and applications* (ed) Miguel Castano Arranz; Ramin Karim, Luleå University of Technology, 2019, s. 28-32.

6. Illankoon, P., Tretten, P., Singh, S. 2019. 'Decision Support System for Flight Maintenance Technicians: Issues and Challenges', In proceedings for E-maintenance 2019, May 14-15, 2019, Stockholm.
7. Illankoon, P., Tretten, P., & Kumar, U. 2018. 'Sustaining implicit learning in locomotive operation'. In 20th Nordic Seminar on Railway Technology, Chalmers University, Gothenburg, (pp. 59-60).
8. Al-Douri, Y., Tretten, P. 2017. 'A critical review of Information Assurance (IA) framework for condition-based maintenance of railway tracks' European Safety and Reliability Conference (ESREL 2016), Glasgow, 25/09/2016-29/09/2016, pp. 1072-1078.
9. Kour, R., Tretten, P. & Karim, R. 2015. 'Service-oriented approach of an eMaintenance Cloud' Proceedings of the International Conference of COMADEM, Dec 1-4, 2015, Buenos Aires, Argentina.
10. Tretten, P. & von Beetzen, H. 2015. 'Is Kinect suitable for Ergonomic Evaluation?' Human Factors and Ergonomics Europe Annual Meeting, 14-16 Oct. 2015, Groningen, Holland.
11. Tretten, P. & Aronsson, I. 2015. 'The development of an aircraft maintenance technician headset' Human Factors and Ergonomics Europe Annual Meeting, 14-16 Oct. 2015, Groningen, Holland.
12. Kour, R., Karim, R. & Tretten, P. 2015. 'EMaintenance solutions for railway maintenance decisions' World Congress on Engineering, WCE 2014: London, 2 - 4 July 2014. Ao, S. I., Gelman, L., Hukins, D. W. L., Hunter, A. & Korsunsky, A. (red.). Hong Kong: Newswood Limited, Vol. 1, s. 228-232 5 s. (Lecture Notes in Engineering and Computer Science).
13. Kumar, U. (ed.), Karim, R. (ed.), Parida, A. (ed.) & Tretten, P. (ed.) 2014 Proceedings of the 3rd international workshop and congress on eMaintenance: June 17-18 Luleå, Sweden: eMaintenance, Trends in technologies & methodologies, challenges, possibilities and applications, Luleå: Luleå University of Technology.
14. Nunoo, E., Tretten, P. & Parida, A. 2014. 'Issues and challenges for condition assessment: A case study in mining' Proceedings of the 3rd international workshop and congress on eMaintenance: June 17-18 Luleå, Sweden: eMaintenance, Trends in technologies & methodologies, challenges, possibilities and applications. Kumar, U., Karim, R., Parida, A. & Tretten, P. (Ed.). Luleå: Luleå University of Technology, pp. 85-93.
15. Al-Jumaili, M., Karim, R. & Tretten, P. 2014. 'Multi-Criteria Data Quality Assessment Maintenance perspective', Proceedings of the 3rd international workshop and congress on eMaintenance: June 17-18 Luleå, Sweden: eMaintenance, Trends in technologies & methodologies, challenges, possibilities and applications. Kumar, U., Karim, R., Parida, A. & Tretten, P. (Ed.). Luleå: Luleå University of Technology, pp. 153-158.
16. Tretten, P. & Normark, C. J. 2014. 'Human Factors Issues in Aircraft Maintenance Activities: A Holistic Approach' Human Factors and Ergonomics Europe Annual Meeting, 8-10 Oct. 2014, Lisboa, Portugal.

17. Morant, A., Karim, R., Tretten, P. & Galar, D. 2012. 'Improvement of configuration management in railway signalling system' Proceedings of the 2nd International Workshop & Congress on eMaintenance: Dec 12-14 Luleå, Sweden: eMaintenance: trends in technologies and methodologies, challenges, possibilities and applications. Karim, R., Parita, A. & Kumar, U. (Ed.). Luleå: Luleå University of Technology, pp. 23-32.
18. Wandt, K, Tretten, P & Karim, R 2012, 'Usability aspects of eMaintenance solutions'. R Karim, A Parida & U Kumar (editors), Proceedings of the 2nd International Workshop & Congress on eMaintenance: Dec 12-14 Luleå, Sweden: eMaintenance: trends in technologies and methodologies, challenges, possibilities and applications. Luleå University of Technology, Luleå, pp. 77-84.
19. Tretten, P, Karim, R & Kumar, U 2011, 'Usability-based eMaintenance for effective performance measurement'. D Galar, A Parida, H Schunnesson & U Kumar (red), MPMM 2011: Maintenance Performance Measurement & Management: Conference Proceedings. Luleå University of Engineering, Luleå, pp. 53-59.
20. Aljumaili, M, Rauhala, V, Tretten, P & Karim, R 2011, 'Data quality in eMaintenance: a call for research'. D Galar, A Parida, H Schunnesson & U Kumar (editors): MPMM 2011: Maintenance Performance Measurement & Management: Conference Proceedings. Luleå University of Technology, Luleå, pp. 69-73.
21. Tretten, P, Gärling, A, Nilsson, R & Larsson, T 2011, 'An on-road study of head-up display: preferred location and acceptance levels'. Proceedings of the HFES 55th Annual Meeting. Human factors and ergonomics society, pp. 1914-1918. Human Factors and Ergonomics Society Annual Meeting Proceedings
22. Tretten, P, Normark, CJ & Gärling, A 2009, 'Where should driver information be placed?: a study on display layout'. 53rd Annual Meeting of the Human Factors and Ergonomics Society, October 19-23, 2009.
23. Normark, CJ, Gärling, A & Tretten, P 2009, 'Do redundant head-up and head-down display configurations cause distractions?'. Proceedings of the 5th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design: driving assessment 2009. pp. 398-404.
24. Tretten, P, Normark, CJ & Gärling, A 2009, 'The effect of redundant information in HUD and HDD on driver performance in simple and complex secondary tasks'. 1st International Conference on Driver Distraction and Inattention: September 28-29, 2009. Chalmers tekniska högskola.
25. Tretten, P, Normark, CJ & Gärling, A 2009, 'Warnings and placement positions in automobiles'. 17th World Congress on Ergonomics: IEA 2009 ; Beijing, August 9 - 14, 2009 . Chinese Ergonomics Society, Beijing.
26. Tretten, P 2008, 'Warnings and placement positions in automobiles'. 2008 AHFE International: 2nd International Conference on Applied Human Factors and Ergonomics jointly with 12th International conference on Human

Aspect of Advanced Manufacturing (HAAMAHA) : 14-17 July 2008,
Caesars Palace, Las Vegas, Nevada USA.

27. Tretten, P, Gärling, A & Pettersson, D 2008, 'Drivers perceptions of displayed warnings, driver information, and in-vehicle technologies' importance and placement: a cross-cultural survey' International Conference on Traffic and Transportation Psychology, Washington, DC, USA, 31-08-08 - 04-09-08,
28. Tretten, P, Gärling, A & Lundberg, J 2007, 'Drivers' perceptions of displayed warnings importance and placement: a cross-cultural survey'. Automobile for the future: EAEC 2007, 11th EAEC European Automotive Congress. Proceedings. European Automobile Engineers Cooperation.
29. Normark, CJ, Kappfjell, M, Tretten, P, Lundberg, J & Gärling, A 2007, 'Evaluation of car instrumentation clusters by using eye-tracking'. EAEC 2007 Proceedings: 11th European Automotive Congress. EAEC.
30. Fritsch, J, Júdice, A, Soini, K & Tretten, P 2007, 'Storytelling and repetitive narratives for design empathy: case Suomenlinna' Nordic Design Research Conference, Stockholm, Sweden, 27-05-07 - 30-05-07.

Peer reviewed Pedagogical articles

1. Berglund, A., Tretten, P. & Högström, P. 2015. 'Is video feedback in higher education worth a byte?' Great Expectations: Design Teaching, Research & Enterprise: Design Teaching, Research & Enterprise - Proceedings of the 17th International Conference on Engineering and Product Design Education (E&PDE15). Kovacevic, A., Bingham, G. & Parkinsson, B. (Editor). Glasgow: The Design Society Institution of Engineering Designers, pp. 258-263.
2. Berglund, A. & Tretten, P. 2013. 'Who wins from academic consulting' Design Education-Growing Our Future: Proceedings of the 15th International Conference on Engineering and Product Design Education (E&PDE13). Glasgow: The Design Society Institution of Engineering Designers, pp. 82-87.
3. Berglund, A., Tretten, P. & Håkansson, A. 2012. 'A systematic self-assessment tool' Proceedings of the 14th International Conference on Engineering and Product Design Education: Design Education for Future Wellbeing, (E&PDE 2012), pp. 311-316.
4. Berglund, A & Tretten, P 2011, 'Development of the systematic grading procedure'. A Kovacevic (Editor), Design education for creativity and business innovation: Proceedings of the 13th International Conference on Engineering and Product Design Education. Design Society, Glasgow, pp. 293-298. DS / Design Society, nr 69.
5. Berglund, A & Tretten, P 2010, 'Systematic grading procedure based on subjective values'. C Boks (Editor), When design education and design research meet-: proceedings of the 12th International Conference on Engineering and Product Design Education, Norwegian University of Science

Document

Application to the post of Associate Professor in Operation and Maintenance
Engineering

Author

Phillip Tretten

Date

2020-12-14

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and Technology (NTNU) Trondheim, Norway, 2nd-3rd September 2010.
Design Society, Glasgow. DS / Design Society, nr 62.

2.4. Approved Research Grants

My role in research funding proposals was to assist members of our division but since 2014 I've become the lead author in several proposals. Firstly, I need to continue to build confidence with industrial partners and other project partners so that I, and my work, will continue to be considered as a project partner.

Secondly, since it is difficult to get financing for decision support alone, I must continue to work on developing a proposal strategy where I can get financing for my speciality within other technical frameworks. Thirdly, research financing that supports PhD students is a top priority. Since my employment at the Division of Operation and Maintenance I've actively participated in National and International proposals, varying from SSF, INTEREG, Vinnova to EU FP7 and Horizon 2020. Early on my career I actively assisted in developing specific work packages for proposals, mostly focusing upon Human Factors issues in the maintenance process. Today, I'm quite active as the lead author from LTU in proposals. Most are written together with former EU project partners. On top of that I've written and received project financing from infrastructure owners Vattenfall Hydropower and Trafikverket. My active role in project work has led to proposal writing opportunities, which would never have crystalized if I had not proven myself to be a trustworthy partner.

2020

- H2020-MSCA-ITN-2020 — **MORIA: MonItoRing of large scale complex technological systems**. I am the main applicant. 3 200 000 SEK
- H2020-S2RJU-2019 – **IN2SMART2**. I assisted in writing the application. 17 000 000 SEK.
- Stiftelsen Arne S Lundberg 435 000 SEK – Development of student recruitment strategies

2019

- SIPStrim 500 000 SEK – Hard Rock Tour – Market analysis and development of student marketing materials for the mining industry
- LTU Jämställdhets utvecklingsfond 150 000 SEK
- LTU Internationalization project 300 000 SEK

2018

- Stiftelsen Arne S Lundberg for Hard Rock Tour was awarded 250 000 SEK to support in marketing and recruiting of new students to LTU.

2016

- H2020 Shift2Rail project proposal for '**In2Smart**' '**Intelligent Innovative Smart Maintenance of Assets by integrated Technologies**' budget **1 000 000** SEK. The project consists of several parts where of this is the first step. This project will develop the maintenance strategy standards to be used in the Shift2Rail programme. I was co-applicant and in charge of a main Workpackage.

- Vattenfall project proposal for ‘**Advanced analysis methods for CBM of hydropower plants**’ budget **400 000 SEK**. The project consists of two parts data analysis and a graphical user-interface. I was the main applicant
- ePilot 119 project proposal for ‘**App för Faktblad bandel 119 – fas 1 – uppföljning av nulägeanalysen**’ budget **220 000 SEK**. The project consists of two parts, comparison of earlier studies to the state-of-art and, secondly, to develop a tool/application for tracking KPIs of track.

2015

- Trafikverket for ‘**BatMan - LCC Bridge Life-Cycle Cost Optimisation**’. The pre-study was awarded **150 000 SEK** and I was the main applicant.

2014

- Vinnova NFFP6 project ‘**Context-based decision support for operative aircraft maintenance**’ was awarded **4 200 000 SEK**. I was participating applicant and Ramin Karim main applicant.
- Trafikverket project ‘**ePilot – Development of an eMaintenance infrastructure**’ was awarded **2 670 000 SEK** and I was participating applicant and Ramin Karim main applicant.

2013

- LKAB project ‘**Key Performance Indicators for control and management of maintenance process through eMaintenance**’ was awarded **4 288 177 SEK**. I was participating applicant, Ramin Karim main applicant.
- LKAB project ‘**eMaintenance for on-line Condition Assessment and Control (eMCA)**’ was awarded **4 288 177 SEK**. I was participating applicant and Ramin Karim main applicant.
- HLRC project ‘**eMaintenance Cloud for sustainable production – A pre-study**’ was awarded **400 000 SEK**. I was participating applicant and Ramin Karim was main applicant.
- Komatsu Forest & ProcessIT project ‘**PROACTIVE Maintenance**’ was awarded **1 000 000 SEK**. I was participating applicant and Ramin Karim main applicant.

2012

- FP7-FoF.NMP.2012-2 iMain – ‘**A novel decision support system for intelligent maintenance**’ was awarded **5 800 000 SEK**. I was participating applicant and Ramin Karim was main applicant.
- LKAB project to develop and establish the **eMaintenance Lab Kiruna** which was granted **5 275 000 SEK**. I was participating applicant and Ramin Karim was main applicant.

2.5. Other financing

- Northvolt educational program for engineers – **5 000 000 SEK 2020-2021**
- LKAB educational program for maintenance technicians – **760 000 SEK 2019; 830 000 SEK 2020; 1 200 000 SEK 2021**

2.6. Network/ Research Collaboration

- Keynote Title: “Improvement of Maintenance” Swedish Maintenance Society 50th Anniversary, 3-4 Oct 2019.
- Seminarium “New technologies and man”, LKAB, Malmberget 3 Dec 2018.
- Keynote Title: Condition Monitoring – More than sensors, Conference Condition-based Maintenance, Skjetten, Norway, 19-20 Nov 2018.
- Workshop “New technologies and man”, LKAB, Kiruna 11 Sept 2018
- CMIS theme day “Safety culture in the workplace”, SSAB, Luleå, 2 Oct 2018
- CMIS Days “Future maintenance challenges” LTU, Luleå, 30-31 May 2018
- CMIS theme day “Preventive maintenance, today and tomorrow”, Smurfit-Kappa Piteå, 23 Jan 2018
- CMIS theme day “Logistics of spare parts”, Scania, Luleå, 17 April 2018
- Held Workshop on Digitalisation in Maintenance, Kiruna 31 Jan 2018.
- Digitalisation in Maintenance, Vedlikeholdsnettverk Nord meeting, Fauske, Norway, 5th Sept 2017.
- New technologies, Vision of the Future, and Research Results, Artic Maintenance and Conveyor Conference, Narvik 14-15 Feb 2017, Keynote speaker
- CMIS workshop 25-26 Jan 2017, Organiser and chair.
- eMaintenance 2016, June 15-16 in Luleå, Sweden. Organiser, speaker, and session chair.
- CMIS workshop 15-16 March, 2016 in Kiruna, Sweden. Lecture on maintenance planning.
- EuroMaint 2015 May, 2015 in Helsinki, Finland. Paper presentation.
- ICRESH-ARMS 2015 June, 2015 in Luleå, Sweden. Paper presentation.
- Human Factors and Ergonomics Society Europe Annual Meeting 14-16 October, 2015 in Groningen, Netherlands. Presentation of paper and poster.
- CMIS workshop 24-25 November, 2015 in Luleå, Sweden. Symposium on future maintenance challenges. Speaker and organiser.
- COMADEM 2015 (International Conference on Condition Monitoring and Diagnostic Engineering Management) 1-4 December, 2015 in Buenos Aires, Argentina. Paper presentation.
- CMIS workshop 24-25 September 2014, Luleå, Sweden. Presentation of work.
- Human Factors and Ergonomics Society Europe Annual Meeting 2014, Lisbon, Portugal. Paper presentation.
- CMIS workshop 5-6 February, 2014 in Luleå, Sweden. Speaker.
- eMaintenance 2014 (The 3rd International Workshop and Congress on eMaintenance, Luleå. Session chair and paper presentation.
- CMIS workshop 24-25 September, 2013 in Linköping, Sweden. Co-organiser.
- Facilitated an educational project with IUC Norrbotten, SMEs and the process industry Norrbotten.
- Vattenfall competence development workshops, 2011-2013.

- ProcessIT projects with process industry, 2012-2014
- Project to developed competence development strategy for Malmfälten. Lapplands kommunförbund.
- HFES 2012 Human Factors and Ergonomics Society, Boston, MA.
- eMaintenance 2012 (The 2nd International Workshop and Congress on eMaintenance) Luleå. Paper presentation.
- Esrange collaboration discussions for maintenance research projects. Jan-Mar 2012.
- HFES 2011, Human Factors and Ergonomics Society, Las Vegas, NV. Paper presentation
- MPMM 2011 Maintenance Performance Measurement & Management Conference, Luleå. Paper presentation.
- IEA 2009, 17th World Congress on Ergonomics Beijing, China. Paper presentation.
- HFES 2009, Human Factors & Ergonomics Society, San Antonio, TX. Paper presentation
- ICED 2009 International Conference on Engineering Design, Palo Alto, CA. Paper presentation.
- AHFE 2008 International Conference on Applied Human Factors and Ergonomics, Las Vegas, NV. Paper presentation.
- ICTTP 2008 (International Conference on Traffic and Transportation Psychology, Washington, DC. Paper presentation.

2.7. Popular science communication of research results

- Maintenance Perspectives in the Workplace. International Week, PXL-University College, Belgium, 2 Dec 2020.
- Industrial AI – A Human Perspective, Research Days, Sustainability Circle, 13th Oct 2020
- Robotics in maintenance add new opportunities, and challenges, CMIS Days, Luleå, 31st May 2018
- Digitalization in maintenance: Operator 4.0, SOLE-Symposium Teleborg 2018, Växjö, Sweden, 6-7 Feb 2018
- Digitalization in railway maintenance, Trainhack 2017, Vetenskapens Hus, Luleå, 8th Sept 2017
- Presentation at the Palm Beach Atlantic University, USA., June 2017.
- Results in local newspapers - Piteå tidning, NSD, Jämtlandstidning.
- eMaintenance Lab on local TV – TV4, SVT, Norrbottens Kiruren, Norrlandska social demokraten
- International Railway Journal, Nov 6, 2013, ‘eMaintenance Lab streamlines data analysis’ article was about our railway research in the eMaintenance Lab.

2.8. National and International Awards

- Nordeastipendiet (2010)

- Seth M Kempe Stipendiefond (2009)
- Wallenbergsstiftelsen “Jubilemanslaget” Travel Scholarship (2008).

2.9. Other scientific merits outside the University

Membership in academies / committees, etc.

- IEEE member (since 2017)
- Chairman of Scientific Committee, Swedish Maintenance Society (since 2017)
- Human Factors and Ergonomics Society (since 2009)
- European Federation of National Maintenance Societies VZW (EFNMS), (since 2011)
- Swedish Maintenance Society (since 2011)
- PhD grading committee – Alexandros Rouchitsas, Virtual Human Characters for Autonomous Vehicle-to-Pedestrian Communication; Luleå University of Technology, 10 June 2022
- PhD examiner – Nausheen Saeed, Dalarna University, March 2024
- Licentiate examiner – San Giliyana, Smart Maintenance Technologies in the Manufacturing Industry: Implementation, Challenges, Enablers and Benefits: Mälardalen University, 15 Dec 2023

Assignments as a reviewer / independent expert

- Reviewer for ‘The International Journal of Aerospace Psychology’ since 2023
- Reviewer for “Theoretical Issues in Ergonomics Science” since 2023
- Associate Editor for International Journal of Human Factors and Ergonomics since 2017
- European Federation of National Maintenance Societies (EFNMS) Health, Safety & Environmental Committee since 2019
- Reviewer for “International Journal of System Assurance Engineering and Management” since 2019
- Associate Editor for ‘International Journal of COMADEM’ since 2014
- Reviewer for ‘Journal of Quality in Maintenance Engineering’ since 2018
- Reviewer for ‘The Human Factors and Ergonomics Society Annual Meeting’ since 2010
- Reviewer for ‘Applied Sciences’ since 2021
- Reviewer for the journal ‘Information’ since 2017
- Reviewer for the journal ‘Safety’ since 2017
- Reviewer for ‘IEEE/OSA Journal of Display Technology’ since 2016
- Editorial Committee of ‘Proceedings of the 2nd International Workshop and Congress on eMaintenance December 12-14, 2012 in Luleå, Sweden’
- Editorial Committee of ‘Proceedings of the 3rd International Workshop and Congress on eMaintenance, June 17-18, 2014 in Luleå, Sweden

- Editorial Committee of '4th International Workshop and Congress on eMaintenance, June 14-16, 2016 in Luleå, Sweden

Other scientific work

I helped develop and establish the first international lab on eMaintenance (2011). The main purpose of the lab is to provide a collaborative platform and infrastructure for academia and industry to conduct research and education with focus on eMaintenance. This initiative has met with very great interest from various stakeholders, from both industry and academia. Among the stakeholders are: LKAB, Saab Support and Services, Vattenfall Hydropower, Boliden, Trafikverket, ABB, Microsoft, SAP, Systecon, OSI Soft, and IBM. Today, 20+ research projects are actively using the eMaintenance Lab as a basis for their data and analysis. We build a second lab in Kiruna with financial support from LKAB.

3. Pedagogical Merits

My pedagogical proficiency can be assessed based upon my role as a teacher, as the Educational leader of two programs, and in my role as Program leader for a Bachelors and a Masters programme. I've played a key role in developing two programmes, which includes both the administrative and pedagogical tasks. Presently, I am reviewing both programs and their courses using Constructive Alignment to produce align the program goals to examination goals and the respective course goals.

On top of that I am implementing CDIO standards into the Bachelors programme, and implementing a project course based upon CDIO. Changes that I've previously implemented vary from teaching methods, pedagogical development, varied examination forms, Flipped Classroom, peer-evaluation, and a project course based upon Blooms taxonomy. These changes grew out of a realisation, which has grown as I've gained pedagogical experience and knowledge, which is coupled to both student and industry feedback to our courses and programme. I've also been active in pedagogical development in developing courses and programs, both within LTU and externally. On top of that I've authored five papers on pedagogical development and developed the Systematic Grading Procedure, presently in use, to assist teachers in grading and giving feedback.

My teaching role has me most active in our project course and thesis supervision. This, I feel, is potentially the most rewarding of classroom situations. In these situations, students are given more freedom to test their skills and freedom to develop. My goal in every student project is to get them to think more globally, as a practitioner, holistically, and critically, putting everything together into a complete package. The most rewarding thing for me is to see finally understand why they are in school, what they are doing, and where they are going.

3.1. Pedagogical Education

Course	Credits	Year
Education for Sustainable Development	3,0 Hp	2018
Research Supervisor Course 2	3,0 Hp	2017
Teaching and Learning in Higher Education	7,5 Hp	2016
Pedagogical Leadership	3,0 Hp	2016
Course Development with the CDIO Initiative	3,0 Hp	2016
Research Supervisor Course 1	1,5 Hp	2012
Netbased learning in higher education, 18-19 February 2014	0,5 Hp	2014
Netbased learning in higher education, 16-17 September 2014	0,5 Hp	2014
First Nordic Workshop on Recruitment to Advanced Engineering Education, 5-6 May 2014, Linköping University	0,5 Hp	2014

3.2. Basic Pedagogical Ideology

As a teacher, I believe that basically all the teaching methods I've read about and learned, are tools that can be used in the different situations. This includes everything from leadership training, pedagogy, group work, project work, Flipped classroom, peer review, distance education, MOOCs, CDIO pedagogy, etc., I am convinced that no one method is a cure all. That's why I experience teaching to be such a challenging and humbling experience. I realize that as a teacher, I do not have all the answers. Many more factors are included, such as, program goals, teaching goals, examination methods, and, even, the student's capacity. It depends upon their level of understanding, their level of maturity, their motivation, and their student's knowledge (Crawley, Malmqvist, Östlund & Brodeur, 2007). All this plays a role in how I as a teacher must prepare my materials and myself for each meeting.

I've learned a lot from, my children, as a coach of children, youth, and adults that it is important for their learning if they are given a clear structure and that we have agreed upon goals. When everyone knows and understands this, is confusion reduced and it's easier to prepare the teaching methods. That's why I personally believe that the syllabi and programs are to be clearly defined and determined before course/program start.

Based upon my experience a necessary trait for teachers is humility. That is because there are few given answers when it comes to assisting someone in learning. Even though my role as a teacher requires me to be an expert within the domain I am teaching, I cannot ever transfer knowledge to the student, without their willingness to learn (Deslauriers, Schelew & Wieman, 2011). Oftentimes I see myself more as a motivator, whose task is to inspire so that they will want to learn and grow. That, I believe, is the most difficult part of teaching, finding what motivates the student (or player or child) to get them to see beyond their physical, emotional, and psychological hindrances (Yeager & Dweck, 2012).

In order to reach them, I need to know them on a more personal level than just the formal, teacher/student, relationship. That's why I often speak to people, to learn more about them, take an interest in their lives, showing compassion, getting them to open up so that the natural barriers are lowered, and trust can be built between us. I accomplish this by promoting discussion in the classroom, especially peer discussion, as a tool for learning (Smith et. al., 2009). Of course, this may sound idealistic but that's how I am and that's why I prefer teaching smaller groups since I feel that I can get them to perform better (Springer, Stanne & Donovan, 1999). With nine children in my home, it's something I've learned to work on, on a daily basis. That is an advantage I have, something I've learned at home which can be used in both my personal and work life.

I enjoy helping people learn; from helping my son to replace a water pump, to teaching a new defence to my players, or showing the students how to plan their project work. It's when I see the "Eureka" experience in their eyes; I know I've succeeded in my task. To assist myself in this task I've learned to read individuals and respond, challenging them, and prodding them when necessary. For me the most challenging and fulfilling part in the classroom is being able to motivate students to exceed their own expectations in their project work or thesis work. I know that I can do it, and I do it regularly in Master's thesis supervision.

A motivated student can and will exceed expectations. Many times, occurs without they themselves knowing it. I came to this understanding in my own struggles as a Masters student, as a PhD student, and during my years as a supervisor. It's what I learned, after a reflection of my own learning process, and hinders I met in my learning process. As I've tried to explain I am a social person who thinks it is important to learn from others, and that's what I've done, learned from others experiences as well. Some challenges can be of rudimentary nature, like writer's block, and can be overcome by getting the student to focus on another part of their work for a while. I see that probably the most important contribution I can give is to assist them in developing their goal, assist them to focus upon the goal, not the hinders, and assist them in reaching the goal.

Overall, I like using the CDIO approach for educational programs (Crawley, Malmqvist, Östlund & Brodeur, 2007). I apply this constructivist method of teaching in my courses through problem-based learning models since it promotes active learning and increased academic achievement (Burrowes, 2003).

Undergraduate teaching

As with all my teaching efforts I feel it is important to begin by agreeing upon the teaching and learning goals. I want to show the student how a course will help them to help them get a clear understanding of what they will be doing and why they will do it. If we can agree upon common goals then it's easier to motivate them. That's why I personally emphasize to my teachers that they should from day one, show the students what they will be learning and the purpose of the course. As simple as it sounds, it is an important step in motivation, using the syllabus to assist in

motivating them. Give them the purpose of why the course is part of the program they chose to study and how the course builds upon the other courses to make a whole (Crawley, Malmqvist, Östlund & Brodeur, 2007). I've learned that when this is brought forth, students' motivation is increased from the start of a course.

Just like when dealing with children or athletes, we teachers do ourselves a disfavor when we use the same teaching methods again and again, year after year, course after course without adapting to the student's groups and the course goals (Deslauriers, Schelew & Wieman, 2011). We all learn in different ways and even motivated students can quickly lose interest if we don't meet them at a level they can be taught and motivated.

As a teacher, I feel that I need to bring with me to the classroom a "toolbox" filled with many different types of tools, not monkey wrenches or ratchets, but different examples, methods, explanations, pictures, and applications. Just as one student told me, "I chose to study on campus so I could be in the classroom with the teacher to feel their energy and ask questions. That's how I learn better". While another student told me, "I chose a distance learning solution because it's the only option for me to get a degree. I'll do whatever it takes to succeed". Different students with different motivations, for one it's the learning environment while for the other it's the opportunity to have more flexibility. Both students have been successful, although this is just an example of how students choose different situations based upon their learning abilities and lifestyle opportunities.

We as teachers need to use our toolbox, to first of all, find out if the students are learning in the classroom. There are methods, normally used, like quizzes, to force them study, although I personally like to come from the other end by enticing them, through motivation. What I do, how I act, in the classroom also effects their learning, that's why I chose to interact more on a personal basis in the classroom using active collaborative methods since it promotes gains in student learning (Terenzini, et al. 2001). I am aware of my role as a professional, my responsibilities as a teacher, and the challenges that can arise if a teacher becomes too friendly to the students. That line I will not cross as a teacher. It takes practice to learn how to communicate in a way that instils a sense of trust and creates an atmosphere where both can feel comfortable.

That's why I'm not afraid to use methods like Flipped Classroom, so that when I meet the students, we interact (Crouch & Mazur, 2001). Why should I spend time lecturing for 45 min when I can converse with them, using my expertise as a teacher and in the subject to find out what they need help in understanding? I feel that I've succeeded in my job when students respond, like they did last week "thank you for the clarification and explanation you gave, using concrete examples, now we understand what we need to do to finish our work".

When it comes to examining students' proficiency, I prefer to use methods that are not focused upon one specific performance at one occasion and in one specific situation. I know some students perform well in written tests, or multiple-choice tests, while others do not. It is not uncommon that a question is misunderstood in a written test, so an oral examination or report could be a better solution. I also know that everyone cannot perform their best on a specific day, just as this is true for athletes, it is true for students. That's why I prefer a form of examination that continuously evaluates the students, not only their skill sets but also their progression. In general, I prefer oral examination over written examination since I can ask the students in different ways to explain their response (Wright, et al. 1998). I also prefer to judge written work in a format there I can follow their progression, acting more as a coach, preparing them for the final product.

Graduate level teaching

When considering education at a graduate level I place more importance on assisting students to become more independent student; to be able to develop solutions using experiential knowledge and coursework through problem-based learning (Prince, 2004). It is at this level the students should be able, according to the CDIO concept, be able to implement and operate. Therefore, I prefer project form of teaching and examination for graduate level students. The courses available should focus more on allowing more freedom to conceive, design, implement, and operate.

My vision is that a Master's program would consist of two courses plus thesis work. The first course would consist of all aspects of what needs to be learned and the framework to where they could apply their theoretical knowledge in a practical task. The second course would be a project course there the students are sent to a workplace, are to investigate the workplace, find a problem of study, with supervision work on that problem and present a solution based upon what they've learned the past 4 years. Everything from presentation techniques to mathematics would be applied here. And finally, the thesis work with a focus on the student acting as an independent student, lifting their skill sets to the next level, challenging themselves and excelling in their task.

Supervision of Masters and PhD thesis work

I believe that a doctoral education is a not a professional education but an academic education. Here are the students learning how to conduct research, even though many of us do get educated for a profession. To do research one needs to be able to think like a researcher, question the status quo, investigate things from different viewpoints, and conceptualize abstract ideas. I don't want my doctoral students to follow an already charted path. I want them to go into uncharted waters to test themselves, to learn to feel comfortable in new areas, and to succeed in finding what is new or what is missing. I feel that my job as a supervisor is to guide them and motivate them. In the beginning, they need more planning and writing support, while later on they will need support in other areas, like in developing an international network. It really depends on the individual but through it all I realize that I must

find what motivates them and then assist them in the right direction so they too can test their own skill sets, grow, and in turn help others.

As one student wrote "I had Phillip as my supervisor during my master thesis at LTU. He showed great interest in my work and his supervision had an important impact on my result. When I reached areas within research that was new to me he always took time and explained them to me thoroughly. This gave me deeper interest and urged me to learn more. When I reached a dead end, he could point me in the right direction, which helped me to proceed. He was good at question my work in a way that made me learn more about it when I was forced to explain or defend something that I had read or written. This developed my confidence and taught me how to narrow down and get the essence out of something. He succeeded in keeping me motivated by giving me constructive feedback on both strong and weak parts regarding content as well as grammatical issues. Altogether, he is a deeply dedicated and engaged supervisor and teacher."

3.3.Educational Achievements

Designed and ran the development of the first gender equality course for Engineering programs at the university. The course is an online course developed for over 20 engineering programs.

In charge of the International educational program, working title 'Swedish School of Mines' (2020-2021). This includes a Bachelors program and five Masters programs within the fields of Natural Resources Engineering, Mining, Metallurgy, Resource Management, Natural Resource Governance.

Developed a Maintenance Engineering educational program for non-academics

A maintenance engineering program was developed for mechanics in the mining industry to increase their competence to the level of a maintenance technician.

Developed a Maintenance Engineering program for Academics

A maintenance engineering program was developed for engineers with a foreign BSc or MSc. The purpose of the program was to teach them the Swedish Standards in maintenance and prepare them to work as a maintenance engineer at Northvolt in Sweden.

Development and use of e-learning/blended learning as a method

The complete Bachelors Program Maintenance Engineering was developed by me to be available for distance studies. All of the maintenance courses use the Flipped Classroom principal, since we have students based in several different regions. What made this possible was that I worked together with the teachers to develop the distance solutions and distance pedagogy.

I developed the Systematic Grading Procedure. This tool was developed based upon the need for a more objective grading method for artistic work in Engineering Design

courses. It was developed based upon the need for more support in motivating student's grades, a tool was needed to assist in giving feedback to students, and a tool was needed to allow less experienced teachers grade student work, giving the same results. This tool was developed under several years together with Anders Berglund and the result has proven to be successful, and is being used presently.

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Engineering

Code	Course	Period	Function	Activity
D7013B	Human Factors in Maintenance	Spr 21	Teacher	Development of course to teaching in all sessions and grading of student work
	Gender Equality for Engineers	Fall 20	Developer	Development of complete online course
D0019B	Human Factors for Safety in the Workplace	Fall 17 Fall 18 Spr 19	Teacher	Development of course, initiated industry project, teaching, supervision, grading
X0009B	Bachelors thesis in Maintenance Engineering	Spr 16 Spr 17 Spr 18 Spr 19	Examiner	Developed grading template, recruit thesis projects and industrial sponsors, recruit supervisors and examiners
D7014A	Master's thesis in Industrial Design	Spr 07 – Spr 16	Teacher	Teaching resource, supervisor
D0017B	Senior Design Project in Operation and Maintenance Engineering	Spr 16 Spr 17 Fall 17 Fall 18	Examiner Lecturer	Development of course, initiated industry project, teaching, supervision, grading
D7010B	eMaintenance: From data to decision	Spr 17	Examiner	Development of and planning of coursework, grading students work
D0013B	eMaintenance	Spr 15 Spr 16 Spr 17	Examiner	Development of and planning of coursework, grading students work
D7016A	Scientific methods for Design Engineering	Fall 15 Fall 16 Fall 17	Lecturer Supervision	Development of course to teaching in all sessions and grading of student work
D7018A	Design Science	Fall 18 Fall 19		Development of course to teaching in all sessions and grading of student work
D004B	Operation and Maintenance - Hydropower	Spr 14	Teacher	Assisted in teaching and supervision
D7006A	Advanced Product Design	Spr 11 Spr 12 Spr 13	Supervision	Development of course projects, supervision of group work, supervision of project results
D7004A	Research Project	Spr 13 Spr 14	Supervision	Development of course projects, supervision of students
D0025A	Design Methods	Spr 08	Lecturer	Lecture planning, Lecture
B0063A	Social Psychology	Spr 09	Lecturer	Lecture planning, Lecture

Development work and course design

Code	Course	Period	Function	Activity
D7013B	Human Factors in Maintenance	2021	Teacher	Wrote syllabus, developed goals and determined examination forms
D0019B	Human Factors for Safety in the Workplace	2017 2018 2019	Teacher	Wrote syllabus, developed goals and determined examination forms
D0010B	Maintenance Strategy	2011 2014 2015	Program leader	Wrote syllabus, developed goals and determined examination forms, revised it twice
D0011B	Introduction to Operation and Maintenance	2011 2013 2014 2016	Program leader	Wrote syllabus, developed goals and determined examination forms, revised it twice
D0012B	Lifecycle and Lifecycle Costing Analysis	2011 2014 2015	Program leader	Wrote syllabus, developed goals and determined examination forms, revised it once
D0013B	eMaintenance	2011 2014 2015	Program leader	Wrote syllabus, developed goals and determined examination forms, revised it twice
D0014B	Maintenance for Infrastructure	2011 2014 2015	Program leader	Wrote syllabus, developed goal and determined examination forms
D0015B	Industrial Maintenance	2011 2014 2015	Program leader	Wrote syllabus, developed goal and determined examination forms
D0016B	Reliability Engineering	2011 2014 2015	Program leader	Wrote syllabus, developed goal and determined examination forms
D0017B	Project course Maintenance Engineering	2011 2015 2016	Program leader	Wrote syllabus, developed goals and determined examination form
X0009B	Bachelors thesis in Maintenance Engineering	2015 2016	Program leader	Developed report template, grading template for student work, recruited thesis projects and industrial sponsors, recruited supervisors and examiners for project work
D7007B	Maintenance Engineering	2015	Program leader	Developed course goals, aligned coursework with program goals, wrote syllabus

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D7008B	Condition Monitoring and Condition Based Maintenance	2015	Program leader	Developed course goals, aligned coursework with program goals, wrote syllabus
D7010B	eMaintenance: From Data to Decision	2015	Program leader	Developed course goals, aligned coursework with program goals, wrote syllabus
D0019B	Human, Safety and Environment	2015	Program leader	Developed course goals, aligned coursework with program goals, wrote syllabus
D7012B	Advanced Reliability Engineering	2015	Program leader	Developed course goals, aligned coursework with program goals, wrote syllabus
X7007B	Master's thesis in Maintenance Engineering	2015	Program leader	Developed report template, grading template for student work, recruited thesis projects and industrial sponsors, recruited supervisors and examiners for project work

Educational leadership

Code	Program	Period	Function	Activity
TIUTG	Bachelors program in Maintenance Engineering	2011-	Program leader	Assisted in designing the program, assisted in developing program goals, examination goals, wrote course syllabi, continuously revise courses based upon student/teacher/industry feedback, re-examined program goals, examination goals, and course goals and examination forms of courses. Run student meetings, bi-weekly teacher meetings, recruitment of students, recruitment of industrial support, and recruitment of teachers. Successful in recruiting students, filling all positions, since day one. Organized, planned, and ran workshops for teachers for program and course development. Recruited teachers to take personal development and program/course development courses.
TMUTA	Masters program in Maintenance Engineering	2015-	Program leader	Developed the Master’s program from scratch. Developed program goals, examination goals, course goals and developed all the syllabi. Recruited teachers and examiners for the program. In charge of student recruitment.
	Maintenance Engineering programs	2014-	Educational leader	Developed short- and long-term strategies for both the Masters and Bachelors programs in Maintenance Engineering. Implemented project courses into both programs. Implementing CDIO concepts into both programs. Active in educational leadership meetings, active in driving CDIO concept for all technical programs. Active in recruiting teachers to study pedagogical advancement courses.

3.4. Supervision

Bachelor's thesis supervision as main supervisor

Year	Author	Title
2020	Marcus Engstedt	Mesa på grusvägar
2020	Kristina Hansson	Mesa på grusvägar
2019	Anna Knutsson	Tillståndsbaserade underhåll på Letsi
2018	Fredrik Wahlstedt	Tillämpning av drönare för tillståndsbedömning av järnvägsterräng
2018	Johannes Nilsson	Tillämpning av drönare för tillståndsbedömning av järnvägsterräng
2017	Albin Andersson	Human Factors analysis and categorisation of aircraft maintenance
2017	Agnes Nilsson	Förbättrad provtagning Aitik anrikningverk
2017	Sofie Törnsten	Avvikelser vid underhåll av JAS 39 Gripen
2016	Roger Halmstig	Underhåll av Boliden trucker
2016	Malin Yngman	Underhåll av Boliden trucker
2016	Jacob Svärd	Lagerkostnad reservdelar
2016	Henrik Eriksson	Lagerkostnad reservdelar
2014	Sara Pousette	Development of a Graphical User Interface for aircraft maintenance
2014	Petra Wiik	Development of a Graphical User Interface for aircraft maintenance
2010	Erik Evers	Metoder och design av visionärt personbilskoncept

3.4.1. Master's thesis supervision as main supervisor

Year	Author	Title
2020	Danial Beigagha	Ergonomic evaluation of aircraft maintenance
2018	Aly Hasselby	Development of a Maintenance Plan for the STEPWISE Project at Swerea MEFOS
2016	Anna-Klara Nilsson	Designing an interface for aircraft maintenance and the possibilities of augmented reality – An iterative user-centered design process
2015	Ida Aronsson	Aircraft Maintenance Technician's Device: Requirements of an Augmented-Reality headset for daily maintenance work
2015	*Hedvig von Beetzen	Ergonomic evaluation using Motion Capture Technology: Testing truck ingress using Microsoft Kinect
2014	Miriam de Tomás Álvarez	Airplane field support: Maintenance technician's device
2011	Joel Bergman	A study on Acceptance of Head-Up Displays in automotive appliances and development of a concept HUD
2010	Meritxell Pijoan I Forcada	CAR 2.0: Interaction between cars and their drivers in twenty years' time

2010	David Juhlin	Mobile Application Analytics: Specification for an online analytics tool
2008	Akhtar Aslfallah	Design of Automobile Instrumentation
2007	Carl-Jörgen Normark	Utveckling av eye-tracking baserad metod för mätning av bilinstrumenteringsars attraktivitet
2007	Monica Kappfjäll	Utveckling av eye-tracking baserad metod för mätning av bilinstrumenteringsars attraktivitet

* won best thesis of the year in 2015

Supervision of PhD students

Years	Student	Title	Level
2022	Parul Khanna	Artificial intelligence empowered system interaction	Co-supervisor from start
2020	Angelo Compierchio	Human Factors evaluation combining real and virtual environments for supporting in-flight security	Main supervisor from start 2020
2017-20	Prasanna Illakoon	Soft Issues of Industry 4.0: A study of Human-Machine Interactions	Main supervisor from start 2017 to finish, PhD 2020
2013-20	Ravdeep Kour	Cybersecurity in Railway: A framework for Improvement of Digital Asset Security	Start to finish, PhD 2020
2013-19	Esi Saari	KPIs framework for maintenance through eMaintenance	Start to finish, PhD 2019
2013-16	Liangwei Zhang	Big Data Analytics for eMaintenance	Start to finish, PhD 2017
2012-16	Yamur Aldouri	Information assurance for maintenance of railway track	Start to finish, Licentiate 2016
2011-16	Mustafa Aljumaili	Data Quality Assessment: Applied in eMaintenance	Start to finish, PhD 2016
2012-13	Karina Wandt		Changed work 2013
2015-	Ville Rauhala	A framework for information logistics for maintenance decision-making	Industrial PhD student

3.5. Teaching Material

Developed the Systematic Grading Procedure (SGP) which is a grading tool that is used by Industrial Design teachers to grade student work. I developed the Systematic

Grading Procedure. This tool was developed based upon the need for a more objective grading method for artistic work in Engineering Design courses. It was developed based upon the need for more support in motivating student's grades, a tool was needed to assist in giving feedback to students, and a tool was needed to allow less experienced teachers grade student work, giving the same results. This tool was developed under several years together with Anders Berglund and the result has proven to be successful, and is being used presently.

3.6. Educational Planning and Administration

2017- Principal Faculty Programme Director and the Deputy Head of Department

Responsible for all education at the Department of Civil, Environmental, and Natural Resources Engineering. I am working on two areas to improve our educational programmes; programme development and the development of our educational organisation. Firstly, the goal is to streamline our courses and programmes to fulfil our program (and educational) goals. Several programmes should be improved to fulfil the national and local examination goals. To solve this both program representatives/ leaders and teachers have been working on developing a common goal and vision by involving students, teachers, and industry representatives. We are becoming more serious about "Program driven course development" and are communicating it to the organisation. Secondly, we will continue to improve our pedagogy, by focusing on lifelong skills, and how we examine the student's skill-sets. Our Educational Leaders and teachers are actively encouraged to develop and improve themselves and their programmes. Thirdly, our organisation has many very good individuals who, work alone. We need to find out how we can build a structure where all can work systematically to improve each other's work situation. We are a team, and must see it as that.

2011 - 2016 Leader of Bachelors Program in Maintenance Engineering

Assisted in designing the program, assisted in developing program goals, examination goals, wrote course syllabi, continuously revise courses based upon student/teacher/industry feedback, re-examined program goals, examination goals, and course goals and examination forms of courses. Run student meetings, bi-weekly teacher meetings, recruitment of students, recruitment of industrial support, and recruitment of teachers. Successful in recruiting students, filling all positions, since day one. Organized, planned, and ran workshops for teachers for program and course development. Recruited teachers to take personal development and program/course development courses.

2013 - 2016 Leader of Master's Program in Maintenance Engineering

Developed the Master's program from scratch. Developed program goals, examination goals, course goals and developed all the syllabi. Recruited teachers and examiners for the program. In charge of student recruitment.

2015 – Educational Leader for Maintenance Engineering programs

Developed short- and long-term strategies for both the Masters and Bachelors programs in Maintenance Engineering. Implemented project courses into both programs. Implementing CDIO concepts into both programs. Active in educational leadership meetings, active in driving CDIO concept for all technical programs. Active in recruiting teachers to study pedagogical advancement courses. As an educational program leader, I've learned that my role requires me to be an administrator, a director of personnel, and a visionary. Besides planning courses and staffing them, I also oversee all the administrative tasks, and on top of that I also need to maintain a clear vision of where the program should be and how it should develop. This means that I, based upon the vision, develop goals and a roadmap of how we need to work to reach the goals. This realization, did not come easy, it has taken years of work. This path has also been a personal journey for me, which started with the process of leading the Bachelors program, as a teacher, in further leading the development of a Master's program, and now today as an Educational Leader.

This work requires me to see that all regulations are fulfilled, from the program level, to the course level, and examination level. For me to conduct this work sufficiently, I have to learn the regulations, keep updated, participate in relevant courses and workshops, and be active in Program meetings, Educational meetings, teacher meetings, and student meetings. I've been very active in discussions with the industry and the students, to learn how they think so that I can best determine what educational strategy is best fitting for the Bachelors and Masters educational programs.

I learned this through the experience of developing the Bachelors program in Maintenance Engineering. Before I took over the role as program leader almost all of the courses were already set, as well as, the course material. I didn't take long for me to find out that what was being taught was quite theoretical. The HSV description of a Bachelors program states that it is to be a "professional" education and not an "academic", of which we were focusing upon. As I developed contacts with the industry, I found out more and more what the industry wanted and what problems they faced. In talking with the teachers, I came to the realization that serving the industries needs will most likely not solve their needs because their needs changes in shorter cycles than we can handle. What we plan for and change can take up to four years before those adjustments effect what the graduated students can do in the workplace.

I had to develop a vision of where we needed the courses and program to be. It had to be based upon what is expected of the students and from society. In my case it is the industries where our students will be working, but I realized in many cases the industry doesn't really know what they need. They do know what problems and challenges they have but not what is needed in future employees. That's where my role as a program leader comes to play, I must learn about the industries, their needs and connect that with our teacher's expert knowledge in the field. I have to build a vision about what should to be taught based upon scientific material and industrial

needs, I must ground my vision in what we can teach them with the fact that what they learn can be applied in the real world.

I saw early on that the center of excellence, Center of Maintenance and Industry Services (CMIS) could play a key role connecting our students to the industry and connecting our key companies with our educational program. In my role today as leader of CMIS, I now am able to learn what is necessary to develop a vision for the programs. I am also able to connect students with the right companies so that both gain from what they each have to offer. One example is our project course, where our students worked with Boliden on specific maintenance problems. The head of maintenance at Boliden was so pleased with the results he asked us to put all the students work into one presentation and present it to Boliden's leadership. He said that the results were so important the must see them.

When I was in charge of developing the Maintenance Engineering Master's program I felt that I was fit for the task, but definitely not an expert in program and course development. It was at this point I started focusing upon the examination methods we used and tried to couple them to the program goals. I decided that we start implementing the CDIO concept to both our programs, since maintenance engineering consists of the whole engineering process, the whole lifecycle (Crawley, Malmqvist, Östlund & Brodeur, 2007). And research shows that cooperative learning environment is more effective (Bowen, 2000).

International cooperation

- Adjunct professor at Palm Beach Atlantic University, USA. Teaching.
- ERASMUS teacher exchange with PXL University College, Belgium, and Avans University/College, Holland.
- ERASMUS student exchange with PXL and University of Stavagnar, Norway.
- Visited University College of South-East Norway, KU Leuven, Belgium, discussing cooperation.
- International cooperation in recruitment from Germany, Holland, Belgium, Finland, Spain, Italy, Iran, India, Nigeria, Brazil, Argentina, etc.
- Learned that it takes a lot of work to make an international cooperation work. We have to be active in keeping contact with the partner universities and active in recruiting.

3.7.Network/ pedagogical collaboration

- ERASMUS teaching exchange with PXL university college, Belgium
- ERASMUS teaching exchange with Avans university college, Holland
- ERASMUS student exchange agreement with PXL university college, Belgium
- ERASMUS student exchange agreement with University of Stavanger, Norway

3.8. Pedagogical Awards

3.9. Additional Pedagogical Merits

- Teaching maintenance for regional industry via CMIS (2011 - 2017)
- Active teaching in adult education courses in cooperation with Bilda (2010 -)
- Taught youth study courses in cooperation with Bilda (2006 – 2010).
- Coaching basket teams since 1992 from children to adults

4. Top Publications

-

5. Management Positions

As a leader, I've learned that my role requires me to be an administrator, a director of personnel, and a visionary. Besides planning and staffing, I also oversee all the administrative tasks. On top of that I also need to develop and maintain a clear vision of where the project/program should be and how it should develop. This means that I, based upon the vision, develop goals and a roadmap of how we need to work to reach the goals. This realization, did not come easy, it has taken years of work. This path has also been a personal journey for me, which started with the process of leading construction crews, project management in the building industry, to self-employed, and now university programs. At the university, I've led as a teacher, run a Bachelors program, a Master's program, and now today as an Educational Leader.

Initially, had to learn what the goals of the group should be, what people really meant and what their intention was. I did not see the real potential of how they could support me in my role as educational leader. I had to learn the regulations, keep myself updated, participate in relevant courses and workshops, and be active in meetings, Educational meetings, teacher meetings, and student meetings. Since I'm very familiar with the social code I try to read peoples body language and communicate on a more personal level. I want to learn what motivates the people I work with. For example, I'm very active in discussions with our industrial contacts and students, to learn how they think so that I can best determine what strategy is best fitting for the Bachelors and Masters educational programs.

Today, I know that by being clear in my communication of the goals I can motivate others to develop themselves. I lead by example, I do not expect others to do more than I myself am not willing to do. At the same time, I realise, I must keep them motivated by not pressing them down. As I see it, my methods we use can always be improved and that's why I choose to study courses from the University Pedagogy Center. I've also led changes in several courses, through the clarification of examination goals, so that our teachers can develop more. I've also led work in supporting Constructive Alignment for each and every course in relation to the program goals, for both the teachers and students to follow the learning process. Since I've learned the national and local guidelines for our programs, I can use that knowledge to support us in our learning process.

To promote a positive educational climate, I regularly (bi-weekly) meet our teachers for 10-30 min meetings and twice a year we have a two day meeting for educational development.

These days include pedagogical teaching and then we work on program/course development. This contact and communication, I believe, has assisted me in being able to institute rather large changes in our courses and in the direction of our program, in a short timeframe.

I learned this through the experience of developing the Bachelors program in Maintenance Engineering. Before I took over the role as program leader almost all of the courses were already set, as well as, the course material. I didn't take long for me to find out that what was being taught was quite theoretical. The HSV description of a Bachelors program states that it is to be a "professional" education and not an "academic", of which we were focusing upon. As I developed contacts with the industry, I found out more and more what the industry wanted and what problems they faced. In the same way, while talking with researchers, I came to the realization that serving the industries needs will most likely not solve their needs because their needs changes in shorter cycles than we can handle. What we plan for and change can take up to four years before those adjustments reach the industry.

I've learned that I must develop a vision. It had to be based upon what is expected from our clients (students or HSV or industry or research funder). In my case it is the industries, although, I realized, in many cases the industry doesn't really know what they need. They do know what problems and challenges they have but not what is needed in the future. That's where my role as a leader comes to play, I must learn about the industries, their needs and connect that with our expert knowledge in the field. I have to build a vision about what should to be taught based upon scientific material and industrial needs, I must ground my vision in what we can teach them with the fact that what they learn can be applied in the real world.

I saw early on that the centre of excellence, Centre of Maintenance and Industry Services (CMIS) could play a key role connecting our students to the industry and connecting our key companies with our educational program. In my role, today as leader of CMIS, I now am able to learn what is necessary to develop a vision for the programs. I am also able to connect students with the right companies so that both gain from what they each have to offer. One example is our project course, where our students worked with Boliden on specific maintenance problems. The head of maintenance at Boliden was so pleased with the results he asked us to put all the students work into one presentation and present it to Boliden's leadership. He said that the results were so important the must see them.

5.1. Administrative assignments

- Principal Faculty Programme Director is the Deputy Head of Department, (2017) This work consists of developing the educational programs, from planning, application, recruitment, and now the coordination of the Educational Leaders work. Responsible for 20 programs and the education in Filipstad, of which has gone bankrupt, requiring much hands-on work with teachers, administrators, teaching consultants, and dissatisfied students. We will continue to develop our programs in accordance with Program driven Course Development, in other terms, CDIO. In our plan to increase gender equality and an increased quality of student applicants, I work with the department's recruitment process.
- Deputy Director for Centre of Maintenance and Industrial Services (CMIS), center of excellence at LTU (2015 - 2019). This consists of the Operation and

Maintenance Engineering group together with industry partners (SSAB, LKAB, Smurfit Kappa, Atlas Copco, Boliden, Scania Industrial Maintenance, Saab Support and Services). The work consists of a cooperation between industry and academia where we work together in improving maintenance on several levels; research, practical, and academic. The goal is to develop project proposals, student projects, and assist each other in the network to improve industrial competitiveness. We have three workshops/year, plus additional meetings for project groups, annual meeting, seminars, courses, lectures, etc. This position is roughly 20% of a full-time position.

- Manager for Master programme in Maintenance Engineering, from 2014 – 2016. This work consisted of developing the Master’s program from planning, application, recruitment, and now the coordination of courses and the teachers. The main group consisted of five senior teachers/researchers and it took two years to prepare. It required us to learn the regulations and implement them. I also spent time traveling to other schools for recruitment purposes. We received over 40 applicants.
- Manager for Bachelors programme in Maintenance Engineering, from 2013 – 2016. My job responsibilities vary from being the local expert on educational regulation, to being in charge of recruitment, to the strategic planner for program development. We are seven who work together meeting bi-weekly for, planning, developing, recruiting, and teaching for the program. I’ve been active from the application process to the completion of our first-year students. We also have strategy workshops twice a year.
- Pedagogical leader for Maintenance Engineering Programmes, from 2013 – 2016. I’m in charge of two programs; Bachelors in Maintenance Engineering and Masters in Maintenance Engineering. My responsibility has been to coordinate the examination goals with our teaching goals and examination methods. This position has me in charge of teachers from the two programs, circa 14, plus external LTU course teachers. We meet twice a year to plan our strategy and verify that we fulfil our responsibilities.
- Responsible for the marketing for the Engineering Programs. My role is to recruit students for both Bachelors and Masters programs and this includes coordination with Universities, High Schools, community adult education centres, and the University recruitment office. I travel to several European Universities, Educational Fairs each year, most High Schools in Norrbotten each year, organise group activities, ad campaigns, and student activities for the programs. Specifically, for the Master’s program I’ve worked on recruiting students from European Bachelors programs in Maintenance. I’ve also written ERASMUS exchange contracts to increase our exposure and recruitment base.
- Coordinator for the 4th Workshop and Congress on eMaintenance. Responsible for the conference strategy, planning, recruitment of keynote speakers, choice of topics, and academic papers. We are a core group of 10 people who meet regularly for planning and preparation.

- Assisted in coordinating the 2nd and 3rd Workshop and Congress on eMaintenance. Organised academic contributions, reviewed all papers, published the proceedings

5.2. Research policy assignments

- WP leader for ARINKA an INTEREG (2019-2021) project. I was responsible for deliverables in the work packages, and we were four university and four national railway infrastructure partners with an LTU budget of 3 MSEK.
- Project manager for iMain FP7 project and Work Package leader for WP3, WP4, WP7 (2012-2015). I was responsible for deliverables in the work packages and LTU's responsibilities. We were eight partners with a budget of 3,5 million €. On top of that I had a key role in preparing material for presentations and workshops. I was also responsible for status reports and budget planning.
- Project manager for Trafikverket project (2015-2016). This work consists of managing four colleagues and collaborating LTU work with Trafikverkets requirements and presenting results.
- Project manager for Vattenfall project (2016 -). This project reports directly to Vattenfall and I am conducting both the research and project management. We will be collaborating with Vattenfall research and MonitorX research group from Norway.
- Project manager for Vinnova project (2011 – 2014). I and two others from LTU worked directly with Vattenfall developing the solution.
- Project manager for NFFP6 project with Saab Support and Services (2015 -). I am working from LTU managing our work with five others. This includes budget and status reporting to Vinnova and Saab Support and Services.
- Responsible for publishing the International Journal of COMADEM, proofreading, copywriting, printing, and distribution of the journal

6. Additional Assignments

6.1. Chair/Board Member during the last five years

- Chairman, Lulegymnasterna (2016-) which is an organisation of 900+ members, ca 130 leaders, one full-time administrator, several part-time project leaders, and an annual budget of 3 600 000 SEK per year. Led growth to 40% year 2019 and 2020. Led the development of and building of Sweden's best gymnastics training facility. Developed a long-term strategy for an gymnastics organisation, of which, has resulted in two junior national team gymnasts, and now one Senior national team gymnast.
- Board member and bookkeeper for the Gideon's (2014 - 2020) and my responsibility is bookkeeping, and report all activities to the local and national organisations.

6.2. Business Experience

- I've worked over 15 years in different types of organisations from my own business (2005-2007) remodelling bathrooms and kitchens, to small businesses in the construction industry, to SMEs like Ace/Avant and Finnmark Mur og Puss, and large like LTU. In all the mentioned organisations, I've had leadership positions and budget responsibilities.
- I have a broad national network of contacts with organisations such as the SSAB, LKAB, Saab Support and Services, Swedish county administrative board, Vattenfall, Luleå municipality and misc small to medium sized companies. I was the first person to develop a stable contact with SSAB by convincing them to join the Center for Maintenance and Industrial Services (CMIS).

6.3. Pro bono Work/ Positions of Trust

- Chairman of StiL basketball (2010 – 2016). My responsibility is to directly report to StiL, plan and run practices, report to Sveriges Idrottsförbund our activities.

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Author

Phillip Tretten

Date

2020-12-14

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APPENDIX A: DOCENT CERTIFICATE



Antagningsbevis

CERTIFICATE OF APPOINTMENT

DOCENT
ASSOCIATE PROFESSOR

Luleå tekniska universitet har antagit teknologie doktor
Luleå University of Technology has appointed PhD

Philip Tretten

till docent i Drift- och underhållsteknik vid Luleå tekniska universitet
as Associate Professor in Operation and Maintenance Engineering at Luleå University of Technology, Sweden

Luleå 21 maj 2018


Birgitta Bergvall-Kåreborn
Rektor
Vice Chancellor



Document

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Author

Phillip Tretten

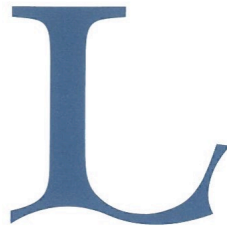
Date

2020-12-14

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APPENDIX B: DEGREE CERTIFICATE PHD



EXAMENSBEVIS

DEGREE CERTIFICATE

Phillip Tretten

1970-01-16-6484

HAR PÅ FORSKARNIVÅ AVLAGT/
HAS BEEN AWARDED THE THIRD CYCLE

TEKNOLOGIE DOKTORSEXAMEN

DOCTOR OF PHILOSOPHY (PHD)

INOM ÄMNET INDUSTRIELL DESIGN
IN THE SUBJECT INDUSTRIAL DESIGN

Luleå tekniska universitet / *Luleå University of Technology*

Examensdatum / *Date of Graduation*

13 maj 2011 / 13 May 2011

Johan Sterte
Rektor/President



EXAMENSBEVIS
DEGREE CERTIFICATE

PHILLIP TRETTE

1970-01-15-6434

Har den 13 maj 2011

Has on 13 May 2011

Inom ämnet
In the subjectOch har författat och vid en offentlig disputation
muntligen försvarat en vetenskaplig avhandling med
titeln/And has written and publicly defended a doctoral dissertation with
the title

Handledare/Supervisor

Biträdande handledare/Assistant Supervisor

Prov
ExaminationInformationsökning för doktorander
Postgraduate course in information retrievalDesigning Locales with Narrative Methods & Nordic
Doctoral Seminar
Designing Locales with Narrative Methods & Nordic Doctoral
SeminarFundamental Research design and Manuscript
Development
Fundamental Research design and Manuscript DevelopmentDoctoral workshop on Statistics
Doctoral workshop on StatisticsTeknisk psykologi, grundkurs
Engineering psychology, basic courseDesignmetodik
Design MethodologyForskarskola MMT (Media-musik-teknik)
Research school MMT (Media-Music-Technology)Design Fakultet Forskarskola
Design Faculty Research SchoolForskarskola MMT (Media-musik-teknik) 0912
Research Arena Media Music and Technologyavlagt **teknologie doktorsexamen** på forskarnivå omfattande
240 högskolepoäng i enlighet med bestämmelserna i
högskoleförordningen (SFS 1993:100 med ändring 2006:1053)been awarded the third cycle **Doctor of Philosophy (PhD) 240 credits**,
in accordance with the regulations governing Swedish Higher Education
(SFS 1993:100 and the amendment 2006:1053)**Industriell design**
Industrial Design**Information Design Solutions for Automotive Displays**
Focus on HUD**Information Design Solutions for Automotive Displays**
Focus on HUD**Docent/Associate Professor Anita Gärling****Professor/Professor Dennis Pettersson**

Prov Examination	Högskolepoäng Credits	Examinator Examiner
Informationsökning för doktorander Postgraduate course in information retrieval	1.5	1 bibliotekarie/ 1st Librarian P Filén
Designing Locales with Narrative Methods & Nordic Doctoral Seminar Designing Locales with Narrative Methods & Nordic Doctoral Seminar	7.5	Professor/Professor Ilpo Koskinen, Konstindustriella högskolan, Finland/University of Art and Design, Finland
Fundamental Research design and Manuscript Development Fundamental Research design and Manuscript Development	7.5	Professor/Professor Esmail Salehi-Sangari
Doctoral workshop on Statistics Doctoral workshop on Statistics	7.5	Professor/Professor Esmail Salehi-Sangari
Teknisk psykologi, grundkurs Engineering psychology, basic course	7.5	Professor/Professor Håkan Alm
Designmetodik Design Methodology	4.0	Professor/Professor Dennis Pettersson
Forskarskola MMT (Media-musik-teknik) Research school MMT (Media-Music-Technology)	7.5	Professor/Professor Jan Lundberg
Design Fakultet Forskarskola Design Faculty Research School	5.0	Professor/Professor Dennis Pettersson
Forskarskola MMT (Media-musik-teknik) 0912 Research Arena Media Music and Technology	5.5	Professor/Professor Jan Lundberg

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Phillip Tretten

Date
2020-12-14

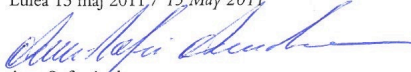
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EXAMENSBEVIS
DEGREE CERTIFICATE

PHILLIP TRETEN 1970-01-15-6434

Prov Examination	Högskolepoäng Credits	Examinator Examiner
Grundkurs i Designforskning Basic course Design research	6.8	Professor/ Professor Peter Ullmark, Kungliga tekniska högskolan, Stockholm/ The Royal Institute of Technology, Stockholm, Sweden
Summa/ Total sum	240.0 högskolepoäng/ Credits	

Luleå 13 maj 2011 / 13 May 2011




Ann-Sofie Andersson
Examenshandläggare/ Degree Evaluation Officer

60 högskolepoäng motsvarar ett års heltidsstudier.
60 credits are equivalent to one academic year of fulltime studies.

Betygsgrad/ The Grades:
För denna prov ges endast betyget "Godkänd"/ The only grade awarded is "Pass".

Prägel/ University Stamp
(Framträder ej på kopia)/
(Does not appear on the copy)



Sida/ Page 3 (3)
Sign. 

Document

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Author

Phillip Tretten

Date

2020-12-14

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APPENDIX C: DEGREE CERTIFICATE LICENTIATE



EXAMENSBEVIS

DEGREE CERTIFICATE

Phillip Tretten

700115-6434

HAR AVLAGT/HAS BEEN AWARDED THE DEGREE OF

TEKNOLOGIE
LICENTIATEXAMEN

INOM ÄMNET INDUSTRIELL DESIGN
LICENTIATE OF ENGINEERING
IN THE SUBJECT INDUSTRIAL DESIGN

Luleå tekniska universitet/Luleå University of Technology

12 december 2008


Rektor/President

LULEÅ
TEKNISKA
UNIVERSITET

DEGREE CERTIFICATE

PHILLIP TRETTE

1970-01-15-6434

has on 12 December 2008

been awarded the degree of Licentiate of Engineering, 80 credit points, in accordance with the regulations governing Swedish Higher Education (SFS 1993:100) and has successfully completed courses according to established syllabus

in the subject

Industrial Design

and has written and publicly defended a scientific thesis with the title

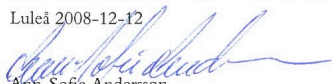
The Driver and the Instrument Panel

Supervisor

Associate Professor Anita Gärling

Course	Credit points	Examiner
Postgraduate course in information retrieval	1.0	1st Librarian P Filen
Designing Locales with Narrative Methods & Nordic Doctoral Seminar	5.0	Professor Ilpo Koskinen University of Art and Design
Fundamental Research design and Manuscript Development	5.0	Professor Esmail Salehi-Sangari
Doctoral workshop on Statistics	5.0	Professor Esmail Salehi-Sangari
Engineering psychology, basic course	5.0	Professor Håkan Alm
Design Methodology	2.5	Professor Dennis Pettersson
Research school MMT (Media-Music-Technology)	5.0	Professor Jan Lundberg
Thesis work	53.5	Associate Professor Anita Gärling Professor Jan Lundberg
Total Sum	82.0 (123.0 HE credits)	

Luleå 2008-12-12


Ann-Sofie Andersson
Administrative Assistant

As of 1 July 2007 one term of fulltime studies is equivalent to 30 higher education credits (HE credits).

The Grades:

The only grade awarded is "Pass".

University Stamp
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on the copy)Page 2 (2)
Sign

Document

Application to the post of Associate Professor in Operation and Maintenance
Engineering

Author

Phillip Tretten

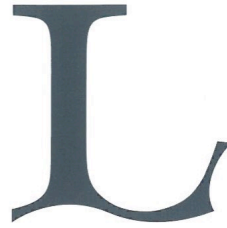
Date

2020-12-14

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APPENDIX D: DEGREE CERTIFICATE MSC



EXAMENSBEVIS

DEGREE CERTIFICATE

Phillip Tretten

HAR AVLAGT/HAS BEEN AWARDED THE DEGREE OF

FILOSOFIE
MAGISTEREXAMEN

I PSYKOLOGI

MASTER OF SCIENCE (MSc)

IN PSYCHOLOGY

Luleå tekniska universitet/Luleå University of Technology

23 juni 2005

Rector/President

LULEÅ
TEKNISKA
UNIVERSITET

DEGREE CERTIFICATE


PHILLIP TRET TEN
1970-01-15-6434

has on 23 June 2005

been awarded the degree of **Master of Science in Psychology**, **160 credit points**, in accordance with the regulations governing Swedish Higher Education (SFS 1993:100)

Course	Credit points	Grade	Date
<i>Major Subject</i> Psychology D	20.0	Pass with distinction**	2005-06-23
<i>Other Subjects</i> Psychosocial Work Environment - Prevention of Stress	5.0	Five (5)	2004-06-04
Senior Design Project in Structural Engineering	5.0	Three (3)	2004-09-20
Mediation	10.0	Pass with distinction**	2005-01-14
In addition to above credits for course work done at Luleå University of Technology credit has been granted for 120 credit points from the degree of Bachelor of Science in Psychology, 120 credit points, awarded at Palm Beach Atlantic University, West Palm Beach, Florida, USA.			
Total Sum	160.0 (240.0 ECTS credits)		

Luleå 15 December 2005


Ann-Sofie Andersson
Administrative Assistant

This degree certificate is a translation of a Swedish degree in accordance with the Swedish Higher Education Ordinance (SFS 1993:100).

The Grade System:

The available grades are: three (3), four (4) and five (5). A higher figure signifies a better grade.

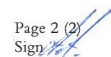
* For this course only the grade "Pass" is given.

** For this course the grades "Pass" or "Pass with distinction" is given.

The number of points shows the length of a course; 20 credit points are equivalent to one term of fulltime studies. 40 credit points are equivalent to one academic year of fulltime studies.

University Stamp
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on the copy)



Page 2 (2)
Sign 

APPENDIX E: DEGREE BSC

**Florida
Bach Atlantic College**
West Palm Beach, Florida

On the recommendation of the Faculty and with the approval of the Board of Trustees has this day awarded the Degree of

Bachelor of Science

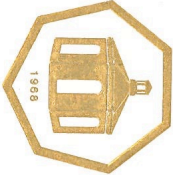
to

Phillip Alan Tretten

as evidence of having satisfactorily completed a program of approved studies.

Given this twenty-third day of May, one thousand nine hundred and ninety-two.

William J. Lawrence
Interim Academic Dean



RRCA
President

Application to the post of Associate Professor in Operation and Maintenance Engineering

Author
Phillip Tretten

Date
2020-12-14

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Palm Beach Atlantic University

ID : 100118004
Name : Phillip Olav Tretten
SSN : 595-34-1989
Address : Lämmelåget 15
Luleå, Sweden 97455

Undergraduate Division
Advisors :

Course Number	Title	CR	Type	Gra	Rpt	Att	Ernd	HGpa	Q.Pts	GPA	
1988-1989 : Fall Semester											
BIO -1013	SURVEY OF LIFE SCIENCI	UG	B				3.00	3.00	3.00	9.00	
ENG -1113	ENGLISH COMP I	UG	C				3.00	3.00	3.00	6.00	
HIS -1113	WORLD CIVILIZATIONS I	UG	D				3.00	3.00	3.00	3.00	
MAT -1253	COLLEGE MATHEMATICS	UG	C				3.00	3.00	3.00	6.00	
OR -0101	STUDENT SUCCESS	UG	B				1.00	1.00	1.00	3.00	
PLS -2113	AMERICAN FEDERAL GOV	UG	C				3.00	3.00	3.00	6.00	
Term Totals :							16.00	16.00	16.00	33.00	2.0625
Career Totals :							16.00	16.00	16.00	33.00	2.0625
1988-1989 : Summer I											
HIS -1123	WORLD CIVILIZATION II	UG	B	R			3.00	3.00	3.00	9.00	
Term Totals :							3.00	3.00	3.00	9.00	3.0000
Career Totals :							19.00	19.00	19.00	42.00	2.2105
1988-1989 : Summer Semester											
BIB -2023	NEW TESTAMENT SURVE	UG	C				3.00	3.00	3.00	6.00	
Term Totals :							3.00	3.00	3.00	6.00	2.0000
Career Totals :							22.00	22.00	22.00	48.00	2.1818
1988-1989 : Spring Semester											
BIB -2023	NEW TESTAMENT SURVE	UG	D		*		3.00	3.00	3.00	3.00	
ENG -1123	ENGLISH COMP II	UG	D		*		3.00	3.00	3.00	3.00	
HIS -1123	WORLD CIVILIZATIONS II	UG	F		*		3.00	0.00	3.00	0.00	
MAT -1853	COLLEGE ALGEBRA	UG	C				3.00	3.00	3.00	6.00	
MUS -2163	MUSIC APPRECIATION	UG	D		*		3.00	3.00	3.00	3.00	
PHY -1003	SURVEY OF PHYSICAL SC	UG	B				3.00	3.00	3.00	9.00	
Term Totals :							18.00	15.00	18.00	24.00	1.3333
Career Totals :							28.00	28.00	28.00	63.00	2.2500

Undergraduate Division
Advisors :

Course Number	Title	CR	Type	Gra	Rpt	Att	Ernd	HGpa	Q.Pts	GPA	
1989-1990 : Fall Semester											
ART -1113	ART APPRECIATION	UG	B				3.00	3.00	3.00	9.00	
CHM -1013	GENERAL CHEMISTRY I	UG	B				3.00	3.00	3.00	9.00	
ENG -1123	ENGLISH COMP II	UG	B	R			3.00	3.00	3.00	9.00	
MAT -3003	LINEAR ALGEBRA	UG	B				3.00	3.00	3.00	9.00	
PSY -2133	GENERAL PSYCHOLOGY	UG	A				3.00	3.00	3.00	12.00	
REL -2103	OLD TESTAMENT SURVE	UG	D				3.00	3.00	3.00	3.00	
Term Totals :							18.00	18.00	18.00	51.00	2.8333
Career Totals :							46.00	46.00	46.00	114.00	2.4783
1989-1990 : Spring Semester											
ENG -2123	AMERICAN LIT II	UG	C				3.00	3.00	3.00	6.00	
MAT -2303	ELEMENTARY FUNCTION	UG	C				3.00	3.00	3.00	6.00	
PHE -1101	COND FOR MEN & WOMEN	UG	A				1.00	1.00	1.00	4.00	
PSY -2113	MARRIAGE AND FAMILY	UG	C				3.00	3.00	3.00	6.00	
PSY -3003	BEHAVIORAL STATISTICS	UG	A				3.00	3.00	3.00	12.00	
SPC -1013	ORAL COMMUNICATION	UG	A				3.00	3.00	3.00	12.00	
Term Totals :							16.00	16.00	16.00	46.00	2.8750
Career Totals :							62.00	62.00	62.00	160.00	2.5806
1990-1991 : Fall Semester											
BUS -1103	AMERICAN FREE ENTERF	UG	B				3.00	3.00	3.00	9.00	
MUS -1991	ORATORIO CHORUS	UG	A				1.00	1.00	1.00	4.00	
PHE -1071	SCUBA I	UG	B				1.00	1.00	1.00	3.00	
PSY -2143	PSYCHOLOGY OF ADJUS	UG	C				3.00	3.00	3.00	6.00	
PSY -3123	PERSONALITY THEORIES	UG	B				3.00	3.00	3.00	9.00	
PSY -3883	PSYCHOLOGY OF LEADE	UG	B				3.00	3.00	3.00	9.00	
PSY -4283	PHYSIOLOGICAL PSYCH	UG	C				3.00	3.00	3.00	6.00	
Term Totals :							17.00	17.00	17.00	46.00	2.7059
Career Totals :							79.00	79.00	79.00	206.00	2.6076

Application to the post of Associate Professor in Operation and Maintenance Engineering

Author
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Date
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Palm Beach Atlantic University

ID : 100118004
Name : Phillip Olav Tretten
SSN : 595-34-1989
Address : Lämmelåget 15
Luleå, Sweden 97455

Undergraduate Division
Advisors :

Course Number	Title	CR Type	Gra	Rpt	Att	Ernd	HGpa	Q.Pts	GPA
1990-1991 : January									
PSY -3803	SELF CONCEPT	UG B				3.00	3.00	3.00	9.00
						Term Totals :	3.00	3.00	3.00
						Career Totals :	82.00	82.00	215.00
						2.6220			

1990-1991 : Spring Semester

PSY -3573	RESEARCH METHODS	UG B				3.00	3.00	3.00	9.00
PSY -3773	INTEGRATION OF PSYCH	UG C				3.00	3.00	3.00	6.00
PSY -47X3	ASSES & TRTMNT OF CH	UG A				3.00	3.00	3.00	12.00
PSY -4893	PRACTICUM IN PSYCHOL	UG W				3.00	0.00	0.00	0.00
SFC -3033	PERSUASION	UG C				3.00	3.00	3.00	6.00
						Term Totals :	15.00	12.00	12.00
						Career Totals :	97.00	94.00	248.00
						2.6383			

1991-1992 : Fall Semester

ART -2133	DRAWING	UG C				3.00	3.00	3.00	6.00
MUS -3991	ORATORIO CHORUS	UG A				1.00	1.00	1.00	4.00
PHIL -2113	INTRO TO PHILOSOPHY	UG F				3.00	0.00	3.00	0.00
PSY -4593	PRIN MARRIAGE & FAM C	UG C				3.00	3.00	3.00	6.00
PSY -4893	PRACTICUM IN PSYCHOL	UG B				3.00	3.00	3.00	9.00
REL -3223	CHRISTIAN ETHICS	UG B				3.00	3.00	3.00	9.00
						Term Totals :	16.00	13.00	16.00
						Career Totals :	110.00	107.00	282.00
						2.6355			

1991-1992 : January

PHIL -2113	INTRODUCTION TO PHILC	UG B				3.00	3.00	3.00	9.00
						Term Totals :	3.00	3.00	3.00
						Career Totals :	113.00	110.00	291.00
						2.6455			

Undergraduate Division
Advisors :

Course Number	Title	CR Type	Gra	Rpt	Att	Ernd	HGpa	Q.Pts	GPA
1991-1992 : Spring Semester									
MUS -1441	CLASS VOICE	UG B				1.00	1.00	1.00	3.00
MUS -4991	ORATORIO CHORUS	UG C				1.00	1.00	1.00	2.00
PHE -1111	CONCEPTS OF FITNESS	UG B				1.00	1.00	1.00	3.00
PSY -3143	COUNSELING METHODOI	UG C				3.00	3.00	3.00	6.00
PSY -4013	PEER COUNSELING	UG B				3.00	3.00	3.00	9.00
PSY -4893	PRACTICUM IN PSYCHOL	UG B				3.00	3.00	3.00	9.00
REL -3513	CULTS	UG B				3.00	3.00	3.00	9.00
						Term Totals :	15.00	15.00	15.00
						Career Totals :	128.00	125.00	332.00
						2.6596			
						Division Career Totals :	128.00	125.00	332.00
						2.6560			

Degree Information :

(1) 'Bachelor of Science' Date Conferred : 05/23/1992

Major(s)
Psychology

APPENDIX F: CERTIFICATE FOR COURSE UNIVERSITY PEDAGOGY



Kursintyg *Högskolepedagogik 7,5 hp*

HÖGSKOLEPEDAGOGISKT CENTRUM INTYGAR ATT

Phillip Tretten

på ett framgångsrikt sätt genomfört kursen högskolepedagogik 7,5 hp.

Syfte

Syftet är att utveckla kunskaper och förhållningssätt som bidrar till genomförande av undervisning på campus och på distans, professionellt, med god kvalitet och med förankring i den vetenskapliga grunden i pedagogik, lärande och didaktik

Mål

- kunna organisera sin undervisning med utgångspunkt i styrdokument och med en vetenskaplig förankring i pedagogik, lärande och didaktik och med användning av IT-stöd, bibliotek etc.
- kunna redogöra för olika perspektiv på kunskap och lärande och reflektera över pedagogiska konsekvenser för den egna undervisningen av de olika synsätten
- kunna formulera sin pedagogiska grundsyn, reflektera över denna, samt sammanställa och presentera den i form av en pedagogisk meritportfölj
- kunna beskriva olika förutsättningar för lärande och omsätta dessa i den egna pedagogiska verksamheten
- kunna beskriva och reflektera över olika examinationsformers betydelse för lärandets inriktning
- kunna beskriva och värdera olika kursutvärderingsformer av som underlättar kvalitetsutveckling, samt använda LTU:s modell för utvärdering
- kunna planera ett arbete för pedagogisk utveckling med utgångspunkt i institutionens behov.

A handwritten signature in black ink, appearing to read 'Oskar Gedda'.

Oskar Gedda 2016-06-30

Kursansvarig

Föreståndare Högskolepedagogiskt centrum

APPENDIX G: CERTIFICATE FOR COURSE PROGRAM DRIVEN COURSE DEVELOPMENT



Kursintyg

Programdriven kursutveckling

HÖGSKOLEPEDAGOGISKT CENTRUM INTYGAR ATT

Phillip Tretten

på ett framgångsrikt sätt genomfört kursen programdriven kursutveckling som omfattar 10 arbetsdagar (motsv 3 hp). Kursen har getts under tiden vt 2016 inom ramen för HPCs kursutbud. Kursen utgår från Pedagogisk idé LTU samt CDIO-initiativet.

Syfte

Syftet är att utveckla en verktygslåda för programdriven kursutveckling och att utveckla handlingskompetens genom att direkt tillämpa kunskap och koncept i ett eget utvecklingsarbete. Aktiviteten blir därmed till dubbel nytta, dels som kompetensutveckling och dels genom att ett antal utvalda kurser kommer att genomlysas och utvecklas.

Mål

Målet är att deltagarna ska kunna analysera och bearbeta ett konkret kursupplägg och planera förbättringar motiverade ur ett lärande- och programperspektiv. Målet är också att deltagarna utifrån gjorda erfarenheter och kursinnehåll genomför kursutvecklingsarbete som dokumenteras i en beskrivande och en reflekterande del med stöd av teori och beprövad erfarenhet.

A handwritten signature in blue ink, appearing to read 'Oskar Gedda'.

Oskar Gedda 2016-05-30

Kursansvarig

Föreståndare Höskolepedagogiskt centrum

APPENDIX H: CERTIFICATE FOR COURSE PEDAGOGICAL LEADERSHIP



Kursintyg *Ledarskap för* *pedagogiskt ansvariga*

HÖGSKOLEPEDAGOGISKT CENTRUM INTYGAR ATT

Phillip Tretten

på ett framgångsrikt sätt genomfört kursen *Ledarskap för pedagogiskt ansvariga* som omfattar 10 arbetsdagar (motsv 3 hp). Kursen har getts under tiden ht 15-vt 16 inom ramen för HPCs kursutbud. Kursen utgår från Pedagogisk idé LTU samt akademiskt ledarskap.

Syfte

Kursens syfte är att stärka ledares förmåga till förändringsarbete kopplat till utbildningskvalitet i allmänhet och pedagogisk idé LTU i synnerhet. Det innebär dels att stärka ledares kunskap om den egna enhetens pedagogiska förbättringskapacitet, dels att stödja systematisk utveckling av undervisningskvalitet och därmed i förlängningen bidra till att förbättra studenters möjlighet till kunskapsutveckling.

Mål

Kursens mål är tvådelat. Dels att kursdeltagaren har stärkt sin förmåga att aktivt leda och bedriva pedagogiskt utvecklingsarbete inom ramen för sitt verksamhetsområde och med utgångspunkt i pedagogisk idé LTU. Dels att ett område inom kursdeltagarens ansvarsområde har utvecklats i pedagogiskt hänseende.

A handwritten signature in blue ink, appearing to read 'Oskar Gedda'.

Oskar Gedda 2016-03-01

Kursansvarig

Föreståndare Högskolepedagogiskt centrum

APPENDIX I: CERTIFICATE FOR NYFIKEN PÅ LEDARSKAP

INTYG

NYFIKEN PÅ LEDARSKAP

SEP 2014 – JAN 2015

Phillip Tretten

Har deltagit i programmet "Nyfiken på ledarskap". Målgruppen är medarbetare som har intresse att öka sin kunskap om rollen som chef och sig själv. Programmet omfattar 8 programdagar med följande teman;

- Kommunikation och samtal på jobbet
- Myer Briggs Type indicator
- Konflikter
- Internationalisering
- Arbetsgrupper och grupper utveckling
- Styrning och ledning av universitet och verksamhet
- Chefs- och ledarskap
- Motivation och drivkrafter
- Förändring och utveckling
- Delaktighet och beslut

Luleå, den 21 januari 2015



Elisabet Sundelin
HR-chef
Luleå tekniska universitet

APPENDIX J: CERTIFICATE FOR COURSE ON LEADERSHIP

Intyg

Ledarutbildning

Phillip Tretten

Utbildningens syfte har varit att öka den egna insikten i ledarskap och de verktyg som finns för ledning av arbetsorganisationer. Utbildningen har genomförts under två dagar, den 18 och 19 januari 2007.

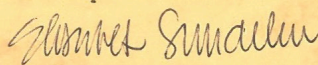
Utbildningsanordnare har varit PU Organisationsutveckling AB.

Utbildningen har innehållit följande huvudavsnitt:

- Ledarskap och chefskap
- Kommunikation och kommunikationsstil
- Förändring och förändringsledning
- Drivkrafter för arbete och yrkesmässig utveckling
- Arbetsgruppen och grupprocess
- Samtalet som verktyg för ledning

Under dagarna har korta föreläsningsspass varvats med övningar och självreflektion.

Luleå den 22 januari 2007



Elisabet Sundelin
PU Organisationsutveckling AB

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Application to the post of Associate Professor in Operation and Maintenance
Engineering

Author

Phillip Tretten

Date

2020-12-14

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APPENDIX K: CERTIFICATE FOR PHD SUPERVISION



KURSINTYG

Phillip Tretten


har genomgått

Forskarutbildningsprocessen - Att handleda och handledas 1,5 poäng

Kursinnehåll

Strategiarbete
Forskarutbildningsprocessen
Jämställdhet
Handledning i praktiken
Identitet i forskningen
Regelverk och intern resursfördelning
Forskningsfinansiering
Forskningsetik

Luleå januari 2012


Ylva Fältholm, ordförande i den universitetsövergripande gruppen för
utbildning på forskarnivå

APPENDIX L: CERTIFICATE FOR RESEARCH FINANCING



INTYG OM GODKÄND KURS

Härmed intygas att *Phillip Tretten* med godkänt resultat genomgått kursen **Forskningsfinansiering** som givits av Grants Office, Luleå tekniska universitet, vårterminen 2010. Kursens omfattning motsvarar 3 poäng i forskarutbildningen.

Kursen har bestått av följande kursmoment.

- *Det svenska finansieringssystemet för forskning.*
- *Hur man skriver en ansökan om forskningsmedel och hur den bedöms av finansiären.*
- *Finansiering från svenska råd, fonder och stiftelser.*
- *Finansiering från EUs ramprogram och EUs strukturfonder.*
- *Finansiering från myndigheter, företag och offentlig sektor*
- *Finansiering efter disputation: post-doc stipendier och forskarassistenttjänster.*
- *Bra att veta om juridik och att skriva avtal med en finansiär*
- *Inlämningsuppgift – egen ansökan*

Luleå, den 8 Juni, 2010

Anders Henriksson (fil. dr.),
Kursansvarig



Grants Office
Luleå tekniska universitet

Document

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Phillip Tretten

Date

2020-12-14

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APPENDIX M: CERTIFICATE FOR PERSONAL DEVELOPMENT AND MENTORING



KURSINTYG

Phillip Tretten

har genomgått Utvecklingsprogrammet

Personlig utveckling med Mentorskap

med

Kerstin Andersson och Elisabeth Johnsson

Syfte

Syftet är dels att stimulera disputerade kvinnor och män att avancera inom akademien och/eller att ta på sig ledningsuppdrag. Genom adepters val av mentor synliggörs också de goda ledarna vid LTU och i omgivande samhälle.

Phillips mentor har varit Lennart Elfgren, LTU

Luleå december 2008

A handwritten signature in blue ink, appearing to read 'Elisabeth Johnsson'.

Elisabeth Johnsson
Projektledare

Document

Application to the post of Associate Professor in Operation and Maintenance
Engineering

Author

Phillip Tretten

Date

2020-12-14

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APPENDIX N: CERTIFICATE FOR NORDEA STIPENDIUM

*Nordeas
Norrlandsstiftelse*

HAR TILLDELAT

Philip Tretten

VID

Luleå tekniska universitet

Northeastipendiet
2009

SUNDSVALL DEN

7 NOVEMBER 2009

NORDEAS NORRLANDSSTIFTELSE

APPENDIX O: RESEARCH SUPERVISION COURSE



Certificate

Phillip Tretten

Research Supervision Course Fall 2016

The Research supervision course at LTU includes the following areas:

- LTU's vision and strategy
- control and management of third-cycle education including rules and guidelines
- intended learning outcomes in third-cycle education
- supervisory role and relations
- research financing
- supervisory models
- gender, equality and diversity
- research ethics.

Luleå 2017-01-25

A handwritten signature in blue ink, appearing to read 'Johan Carlson', is written over a horizontal line.

Johan Carlson, Head of The third-cycle programme group.

APPENDIX P: PROGRAM FOR LEADERSHIP



Phillip Tretten

har deltagit i Chefsprogrammet. Programmets målgrupp är chefer inom akademien och administrativt stöd. Programmet har omfattat åtta seminariedagar. I programmet har följande delar ingått:

- Chefskap inom akademien, position, situation samt makt utifrån uppdraget
- Chefens tre roller i komplexa system
- Chefskap och autenticitet
- Chefskap och stolta och starka professioner
- Chefen som motivator och inspiratör
- Att i chefskapet navigera, leda och styra - enskilt och tillsammans utifrån uppdraget

Luleå 2020

Birgitta Bergvall Kårebom
Rektor

APPENDIX Q: RAILWAY MECHANICS AND MAINTENANCE COURSE

CHALMERS

Gothenburg 25th June 2020

To whom it may concern

Anders Ekberg
Department of Mechanics and Maritime Sci-
ences / CHARMEC
Chalmers University of Technology
SE 412 96 Gothenburg
SWEDEN

Letter of recommendation,

This is to confirm that Phillip Tretten participated in the on-line course "Selected topics in railway mechanics with focus on deterioration" given at Chalmers June 23-25, 2020. The course consisted of six two-hour lectures covering

- Introduction to railway mechanics
- Short intro to mechanical deterioration
- Deterioration of track
- Deterioration of running gear
- Advanced prediction of deterioration (parts 1 and 2)

Due to restrictions related to the on-going pandemic, the course was given as a web-based, real-time course, with the participants interacting using web conference software.

Best regards



Anders Ekberg
Professor in Railway Mechanics

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Document

Application to the post of Associate Professor in Operation and Maintenance
Engineering

Author

Phillip Tretten

Date

2020-12-14

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APPENDIX R: DISTINGUISHED UNIVERSITY TEACHER

DIPLOM

EXCELLENT LÄRARE

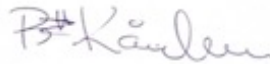
Distinguished University Teacher

Luleå tekniska universitet utnämner/
Luleå University of Technology confers on

Phillip Tretten

till excellent lärare för sin mycket goda pedagogiska skicklighet.
the title of Distinguished University Teacher in recognition of his exceptional teaching expertise.

Luleå 10 november, 2021



Birgitta Bergvall-Käreborn
Rektor



LULEÅ
TEKNISKA
UNIVERSITET

APPENDIX S: PRIZE FOR DISTINGUISHED CONTRIBUTIONS TO THE BENEFIT OF EDUCATION AT BASIC LEVEL AND ADVANCED LEVELS



Diplom

Luleå tekniska universitetens priser för
föreläggande insatser till gagn för
utbildning på grundnivå och
avancerad nivå tilldelas i år:

Phillip Tretten

Biträdande professor vid Institutionen för
sambandsbyggnad och naturresurser

Phillip är djupt engagerad och leder utbildningsutveckling på SBN genom att fokusera på CDIO-standarderna. Han deltar aktivt i programutvecklingskurser och konferenser, för att främja en utveckling i linje med CDIO på institutionen. Phillip har arbetat både direkt och indirekt för främjande av goda lärandemiljöer. Ett par exempel på detta är att han träffar studentkåren varje månad för att i ett tidigt skede ta reda på hur lärandemiljön kan förbättras. Han har också initierat konkreta omvandlingar av lärmiljön för att möjliggöra innovativa flexibla lärmiljöer. Phillip arbetar med kontinuerlig förbättring av SBN:s utbildningsprogram. Han har utbildat utbildningsledare i kvalitetsstyrning av utbildningsprogram, samt har under de senaste fyra åren genomfört workshops avseende utvärdering. Phillips engagemang lägger grunden för en utveckling som kombinerar klassrumsundervisning och andra metoder till ett livslångt lärande.

Luleå 2021-11-10

Birgitta Bergvall-Käreborn
Rektor