

1. CURRICULUM VITAE

1.1 Personal information:

Name: Behzad Ghodrati
Address: Kvarststigen 6 – 977 53 Luleå – Sweden
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www.ltu.se/maintenance



1.2 Bio data:

First name: Behzad **Family name:** Ghodrati
Gender: Male **Personal number:** 19670422-7070
Marital status: Married **Place of birth:** Tabriz, Iran
Two children

1.3 Present position: **Professor** at the Division of Operation, Maintenance Engineering – Department of Civil, Mining and Environmental Engineering, Luleå University of Technology, Luleå – SWEDEN

1.4 Employment record:

- **Associate Professor** at the Div. of Operation, Maintenance Engineering, Luleå University of Technology, 2012 – 2017.
- **Post – Doctoral fellow** at the faculty of Mechanical and Industrial Engineering, University of Toronto, Canada, 2008 – 2010.
- **Assistant Professor and Senior Lecturer** at the Div. of Operation, Maintenance Engineering, Luleå University of Technology, 2006 – 2008.
- **PhD (Doktorand)** at Luleå University of Technology, 2001-2005. I was also in charge of planning and teaching of the 7.5 points course of Applied Operation Research since 2002 up to now.
- **Lecturer** at Sahand University of technology – Mining Eng. dept., Tabriz – Iran, 1993-2000.
- **Project engineer** in Kavoshgaran Consulting Engineering Co., worked in different projects such as Lead & Zinc deposit of Mehdi-Abad (Yazd), feasibility study of the Iron Ore deposit of Choghart (Yazd), Tehran - Iran, 1991-1993
- **Consulting engineer** in Kashi-Irana Co. in Ghare-Aghaj Kaolin deposit, Tabriz - Iran 1993-1997
- **Consulting engineer** in Azarbaydjan Regional Mines Co., Tabriz – Iran, 1989-1990 & 1993-1994
- **Managing Director** of Sahand 356 Cooperative Co., Tabriz – Iran, 1995-2000

2. Degrees and Appraisals:

- **Professor** (Operation and Maintenance Engineering) – 2018, Luleå University of Technology, Sweden
- **Associate Professor** (Operation and Maintenance Engineering) – 2012, Luleå University of Technology, Sweden
- **Post – Doctoral** (Maintenance Engineering), 2010, University of Toronto, Canada
- **PhD** (Operation and Maintenance Engineering) – 2005, Luleå University of Technology, Sweden
- **Licentiate** (Operation and Maintenance Engineering) – 2003, Luleå University of Technology, Sweden
- **ME and BE** (Mining Engineering – Machinery) – 1993, Faculty of Engineering, University of Tehran, Iran

3. Acknowledgements and Awards:

- I received a scholarship in my Master education from the Ministry of Industry and Mining, Iran, in 1991 for two years and also for my PhD from Luleå University of Technology, Sweden.
- I hold the 1st rank and gold medalist in MSc from Tehran University (ranked at 21 in the global ranking of mining and mineral engineering).
- I also hold the awards for best paper and presentations at the 1) “International Conference on Recent Advances in Railway Engineering (ICRARE-2013)” (Iran), and 2) “International Conference on Quality, Reliability, Infocom Technology and Industrial Technology (ICQRITTM-2012)” (India).
- The book *The Routledge Companion to Lean Management* to which I contributed a chapter on “Lean Mining” was selected for a prestigious “Shingo Research Award” in 2017.



4. Publication list

Some of my publications are as:

a) *Journal publications:*

- **Ghodrati, B.,** Hoseinie, H. and Kumar, U. (2017), “Context-Driven Mean Residual Life Estimation of Mining Machinery”, Published online: 10 Apr 2017 in the *International Journal of Mining, Reclamation and Environment*
- Nouri, A., Khalokakaie, R., Ataei, M. and **Ghodrati, B.** (2017), “Operating Environment-Based Availability Importance Measures for Mining

Equipment - Case Study: Sungun Copper Mine”, *Journal of Failure Analysis and Prevention*, Vol. 17, No. 1, pp. 56-67

- Rahimdel MJ, Mirzaei M, Sattarvand J, **Ghodrati B**, Mirzaei Nasirabad H, (2017) “Artificial Neural Network to Predict the Health Risk Caused by Whole Body Vibration of Mining Trucks”, *Journal of Theoretical and Applied Vibration and Acoustics*, Vol. 3, No. 1, pp. 1-14
- **Ghodrati, B.**, Famurewa, S.M., Ahmadi, A. and Hoseinie, H. (2017) “Reliability Analysis of Switches and Crossings – A Case Study in Swedish Railway”, Submitted for publication in the *Journal of Rail and Rapid Transit*
- Lanke, A., **Ghodrati, B.** and Hoseinie, H. (2017), “Effect of climate conditions on production volume variation in open pit mines”, Submitted for publication
- Lanke, A., Hoseinie, H. & **Ghodrati, B.** (2016), “Mine production index (MPi) - extension of OEE for bottleneck detection in mining”, *International Journal of Mining Science and Technology*, Vol. 25, No. 5, pp. 753-760
- Lanke, A., **Ghodrati, B.** and Lundberg, J. (2016), “Production improvement techniques in process industries for adoption in mining: A comparative study”, *International Journal of Productivity and Quality Management*, Vol. 19, No. 3, pp. 366-386
- Lanke, A., **Ghodrati, B.** and Hoseinie, H. (2016), “Uncertainty analysis of production in open pit mines – Operational parameter regression analysis of mining machinery”, *Mining Science*, Vol. 23, pp. 147-160
- Nouri, A., Khalokakaie, R., Ataei, M., **Ghodrati, B.** and Mokhberdoran (2016), “Maintainability measure based on operating environment – Case study: Sungun copper mine”, *Journal of Mining & Environment*, Vol. 8, No. 3, pp. 511-521
- Nouri, A., Khalokakaie, R., Ataei, M., R. Khalokakaie, **Ghodrati, B.** and R. Jafarei (2016), “Tire demand planning based on reliability and operating environment”, *International Journal of Mining & Geo-Engineering*, Vol. 50, No. 2, pp. 239-248
- Rahimdel, M.J., Hoseinie, H. and **Ghodrati, B.** (2016), “RAM analysis of rotary drilling machine”, *Mining Science*, Vol. 23, pp. 77-89
- **Ghodrati, B.**, Hoseinie, H. and Garmabaki, A.H.S. (2015), “Reliability considerations in automated mining systems”, *International Journal of Mining, Reclamation and Environment*, Vol. 29, No. 5, pp. 404-418
- Hamodi, H., Lundberg, J., Al-Ghuri, M., Ahmadi, A. & **Ghodrati, B.** (2015), “Generic model for economic replacement time of production machines”, *Journal of Quality in Maintenance Engineering*, Vol. 1, No.16
- Ahmadi, A., **Ghodrati, B.**, Garmabaki, A.H. & Kumar, U. (2015), “Optimum inspection interval for hidden functions during extended life”, *International Journal of COMADEM*, Vol. 18, No. 4

- Hoseinie, H., **Ghodrati, B.**, Galar, D. and Juuso, E. (2015), “Optimal Preventive Maintenance Planning for Water Spray System of Drum Shearer”, *IFAC-papersOnLine - Elsevier*, Vol. 48, No. 17, pp. 166-170
- Lin, J. and **Ghodrati, B.** (2014), “Production assurance enhancement through spares demand system improvement via information sharing, *Journal of Physics Conference Series*, 6 p
- Hamodi, H., Ahmadzadeh, F., Lundberg, J. & **Ghodrati, B.** (2014), “Economic lifetime prediction of a mining drilling machine using an artificial neural network”, *International Journal of Mining, Reclamation*, Vol. 28, No. 5, p. 311-322
- Hamodi, H., Lundberg, J., Wijaya, A. & **Ghodrati, B.** (2014), “Downtime analysis of drilling machines and suggestions for improvements”, *Journal of Quality in Maintenance Engineering*, Vol. 20, No.4, pp. 306 – 332
- Hoseinie, H., **Ghodrati, B.** & Kumar, U. (2014), “Cost-effective maintenance scheduling of cutting arms of drum shearer machine”, *International Journal of Mining, Reclamation and Environment*, Vol. 28, No. 5, pp. 297-310
- Lanke, A., Hoseinie, H. and **Ghodrati, B.** (2014), “Mine production index (MPI) – New method to evaluate effectiveness of mining machinery”, *International Journal of Environmental, Chemical, Ecological, Geological and Geophysical Engineering*, Vol. 8, No. 11, pp. 755-759
- Amini Khoshalan, H., Torabi, S.R., Hoseinie, S.H. and **Ghodrati, B.** (2014), “An introduction to RAM analysis of EPB tunnel boring machine”, *Scientific Journal of Pure and Applied Sciences*, Vol. 3, No. 3, pp. 120-127
- **Ghodrati, B.**, Ahmadi, A., Galar, D. (2013), “Spare parts estimation for machine availability improvement addressing its reliability and operating environment – Case study”, *International Journal of Reliability, Quality and Safety Engineering*, Vol. 20, No. 3
- Hoseinie, H., **Ghodrati, B.** & Kumar, U. (2013), “Monte Carlo reliability simulation of water system of longwall shearer machine”, *International Journal of Reliability, Quality & Safety Engineerin*, Vol. 20, No. 6
- Hoseinie, S. H., **Ghodrati, B.**, Ataei, M., Khalokakaie, R. and Kumar, U. (2013), “Monte Carlo Reliability Simulation of Coal Shearer Machine”, *International Journal of Performability Engineering*, Vol. 9, No. 5, pp.487-494.
- Hoseinie, S. H., Ahmadi, A., **Ghodrati, B.** and Kumar, U. (2013), “Reliability-Centered Maintenance for Spray Jets of Coal Shearer Machine”, *International Journal of Reliability, Quality and Safety Engineering*, Vol. 20, No. 3
- Hoseinie, S. H., **Ghodrati, B.**, Ataei, M., Khalokakaie, R. and Kumar, U. (2012), “Reliability Analysis of Drum Shearer Machine at Mechanized Long Wall Mines”, *Journal of Quality in Maintenance Engineering*, Vol. 18, No. 1, pp. 98-119

- Hoseinie, S. H., **Ghodrati, B.**, Ataei, M., Khalokakaie, R. and Kumar, U. (2012), "Reliability Analysis of Cable System of Drum Shearer Using Power Law Process Model", *International Journal of Mining, Reclamation and Environment*, Vol. 26, No. 4, pp. 309-323
- **Ghodrati, B.**, Banjevic, D. and Jardine, A.K.S. (2012), "Product Support Improvement by Considering System Operating Environment – A Case Study on Spare Parts Procurement", *International Journal of Quality and Reliability Management*, Vol. 29, No. 4, pp. 436-450
- Ahmadi, A., Gupta, S., **Ghodrati, B.** and Galar, D. (2012), "Estimation of economic consequences of aircraft system failures", *Communications in Dependability and Quality Management*, Vol. 15, No. 1, pp. 39-49
- Galar, D. and **Ghodrati, B.** (2012), "Fusion of CMMS data and CM data: a real need for maintenance - 1", *Maintworld*, April 2012, No. 2, pp. 42-45
- Galar, D. and **Ghodrati, B.** (2012), "Fusion of CMMS data and CM data: a real need for maintenance - 2", *Maintworld*, September 2012, No. 3, pp. 40-43
- Dandotiya, R., **Ghodrati, B.** (2011), "Optimal Pricing and Terminal Location for a Rail-Truck Intermodal Service – a Case Study", *International Journal of Logistics: Research and Application*, Vol. 14, No. 5, pp. 335-359
- **Ghodrati, B.**, Markeset, T. and Ahmadi, A. (2011), "Enhancement of Mining Machineries Performance through Supportability", *International Journal of COMADEM*, Vol. 14, No. 2, pp. 35-43
- Kayrbekova, D., **Ghodrati, B.** and Markeset, T. (2011), "Activity Based Life Cycle Analysis as an Alternative to Conventional LCC in Engineering Design", *International Journal of Systems Assurance Engineering and Management*, Vol. 2, No. 3, pp. 218-225
- Barabadi, A., **Ghodrati, B.** (2011), "Reliability based spare part provision along with considering operational environment - A case study", *International Journal of Performability Engineering* Vol. 8, No. 5, pp. 497-506
- Kumar, S., **Ghodrati, B.**, Gupta, S. and Kumar, U. (2010), "An Approach for Risk Assessment of Rail Defect", *International Journal of Reliability, Quality and Safety Engineering*, Vol. 17, No. 4, pp. 291-311
- **Ghodrati, B.**, Akersten, P-A. & Kumar, U. (2007), "Spare Parts Estimation and Risk Assessment Conducted at Choghart Iron Ore Mine – A Case study", *Journal of Quality in Maintenance Engineering*, Vol. 13, No. 4, pp. 353-363
- **Ghodrati, B.** (2006), "Weibull and exponential renewal models in spare parts estimation: A comparison", *International Journal of Performability Engineering*, Vol. 2, No. 2, pp. 135-147
- **Ghodrati, B.** and Kumar, U. (2005), "Operating Environment Based Spare Parts Forecasting and Logistics – A Case Study", *International Journal of Logistics: Research and Applications*, Vol. 8, No. 2, pp. 95-105

- **Ghodrati, B.** and Kumar, U. (2005), “Reliability and Operating Environment Based Spare Parts Estimation Approach – A Case Study in Kiruna Mine, Sweden”, *Journal of Quality in Maintenance Engineering*, Vol. 11, No. 2, pp. 169-184

b) Conference publications:

- Hoseinie, H., **Ghodrati, B.** and Bagherpour, R. (2017), “Failure Mode and Effect Analysis (FMEA) of Automated Mining Machinery”, *26th International Symposium on Mine Planning and Equipment Selection*, Luleå, Sweden, August 29-31
- Rahimdel, M.J., Sattarvand, J., Nirzaei, M, **Ghodrati, B.** and Hoseinie, H. (2017), “Effective Operational Conditions on the Whole Body Vibration of Mining Truck Driver”, *26th International Symposium on Mine Planning and Equipment Selection*, Luleå, Sweden, August 29-31
- Hoseinie, H., Bagherpour, R. and **Ghodrati, B.** (2017), “Analysis of Lean Production Strategies’ Implementation in Parvadeh Coal Mine, Iran”, *26th International Symposium on Mine Planning and Equipment Selection*, Luleå, Sweden, August 29-31
- **Ghodrati, B.**, Famurewa, S. and Hoseinie, S.H. (2016), “Railway Switches and Crossings Reliability Analysis”, *International Conference on Industrial Engineering and Engineering Management (IEEM 2016)*, IEEE, 4-7 December, Bali, Indonesia
- Hoseinie, H., **Ghodrati, B.** & Kumar, U. (2015), “Maintenance planning for drum shearer machine based on its reliability characteristics and economical sensitivity analysis”, *Safety and Reliability: Methodology and Applications*, Nowakowski, T., Mlynczak, M., Jodejko-Pietruczuk, A. & Werbinska-Wojciechowska, S. (Eds.). London: CRC Press, p. 1257-1262
- Hoseinie, H., **Ghodrati, B.** & Galar, D. (2015), “Optimal Preventive Maintenance Planning for Water Spray System of Drum Shearer”, *The 4th Workshop on Mining, Mineral and Metal Processing*, 25-27 August 2015, Oulu, Finland
- **Ghodrati, B.**, Hoseinie, H., & Kumar, U. (2015), “Reliability of Mining Machinery Automation Systems”, *The 24th International Mining Congress and Exhibition of Turkey*, April 14-17, 2015 Antalya-Turkey
- Rahimdel, M.J., Sattarvand, J., Hoseinie, H. and **Ghodrati, B.** (2015), “Practical Approaches to Reduce the Vibration and Health Risk of Operators in Heavy Mining Trucks”, *Advances in Reliability, Maintenance and Safety (ARMS2015)* conference, June 1-4, 2015, Luleå, Sweden
- Lanke, A. and **Ghodrati, B.** (2015), “Comparison of Mine Production Index factors for rock bolter and shovel”, *Advances in Reliability, Maintenance and Safety (ARMS2015)* conference, June 1-4, 2015, Luleå, Sweden, Springer International Publishing, pp. 645-656
- **Ghodrati, B.**, Al-Chalabi, H, and Hoseinie, H. (2015), “Environmental friendly manufacturing and support – Issues and challenges”, *The 3rd*

International Conference on Application of Materials Science and Environmental Materials (AMSEM2015)
Phuket Island, Thailand, 1 – 3 October, ISBN: 978-981-3141-11-7

- Hoseinie, H., **Ghodrati, B.** and Galar, D. (2015), “Smart Maintenance Solutions for Automated Mining Machinery”, *Third International Conference on Advances in Mechanical and Automation Engineering - MAE 2015*, Rome, Italy, December 10-11
- **Ghodrati, B.** and Ahmadi, A. (2014), “Product Support Logistics Based on System Reliability Characteristics and Operating Environment”, *IEEM : International Conference on Industrial Engineering and Engineering Management (IEEM)*, Bangkok, Thailand, December 10-13
- Hoseinie, H., **Ghodrati, B.** & Kumar, U. (2014), “Assessment of Reliability-Related Measures for Drum Shearer Machine: a Case Study”, *International Symposium High Performance Mining*, Aachen, Germany, June 11-12
- Ahmadi, A., **Ghodrati, B.**, Soleimani Garmabaki, A. & Kumar, U. (2014), “Optimum inspection interval for hidden functions during extended life”, *International Congress of Condition Monitoring and Diagnostic*, Brisbane, Australia, September 16-18
- Ahmadi, A. , **Ghodrati, B.** & Rantatalo, M. (2013), “Optimum Failure Finding Inspection During Extended Operation Life”, *International Conference In Recent Advances in Railway Engineering*, Tehran, Iran, April 1-3
- **Ghodrati, B.** , Ahmadi, A. & Galar, D. (2013), “Reliability Analysis of Switches in Swedish Railway” *International Conference In Recent Advances in Railway Engineering*, Tehran, Iran, April 1-3
- Hamoudeh, Y. and **Ghodrati, B.** (2013), “Analysis of mine mobile fleet maintenance vs. mine roads maintenance for optimum performance”, *International Symposium on Mine Planning & Equipment Selection*, C. & Singhal, R. (eds.). Cham: Springer, Dresden / Freiberg, Germany, October 14-19
- Lanke, A. and **Ghodrati, B.** (2013), “Reducing defects and achieving business profitability using innovative and lean thinking”, *IEEM : International Conference on Industrial Engineering and Engineering Management (IEEM)*, Bangkok, Thailand, December 10-13
- Barabadi, A., **Ghodrati, B.**, Barabady, J. and Markeset, T. (2012), “Reliability and spare parts estimation considering operational environments: a case study”, *IEEE International Conference on Industrial Engineering and Engineering Management*, Hong Kong, China, December 10-13
- **Ghodrati, B.**, Kumar, U. and Ahmadzadeh, F. (2012), “Remaining useful life estimation of mining equipment : A case study”, *International Symposium on Mine Planning and Equipment Selection*, New Delhi, India, November 28-30

- Lin, J. and **Ghodrati, B.** (2012), "Information Sharing in a Spares Demand System", *IEEE International Technology Management Conference: Dallas, USA*, June 24-27
- **Ghodrati, B.**, Ahmadzadeh, F. and Kumar, U. (2012), "Mean Residual Life Estimation Considering Operating Environment", *International Conference on Quality, Reliability, Infocom Technology and Industrial Technology Management*, Delhi, India, November 26-28
- **Ghodrati, B.** and Lin, J. (2011), "A Step-by-Step Model to Improve Delivery Assurance: A Case Study in Mining industry", *IEEE international Conference on Quality and Reliability*, Bangkok, Thailand, September 14-17
- Lin, J., **Ghodrati, B.** and Kumar, U. (2011), "House of Maintenance management in Mining Industry", *IEEE international Conference on Quality and Reliability*, Bangkok, Thailand, September 14-17
- **Ghodrati, B.**, and Lin, J. (2011), "Maintenance Spares Inventory Management- Performance Measurement using a HOMM", *International Conference on Maintenance Performance Measurement & Management*, Luleå, Sweden, December 14-15
- Bonnet, B., Parahy, M., Dersin, P. & **Ghodrati, B.** (2011), "Optimization of maintenance policy based on operational reliability analysis: application to railway switches & crossings", *ESReDA Seminar on Advances in Reliability-based Maintenance Policies*, La Rochelle, France, October 5-6
- **Ghodrati, B.**, Banjevic, D. and Jardine, A.K.S. (2010), "Developing Effective Spare Parts Estimations Results in Improved System Availability", *56th Annual Reliability and Maintainability Symposium (RAMS2010)*, San Jose, CA, USA, January 25-28
- Safaei, N. and **Ghodrati, B.** (2010), "Maintenance workforce management: A case study", *The 1st International Workshop and Congress on eMaintenance*, Luleå, Sweden, June 22-24
- Ahmadi, A., **Ghodrati, B.** and Kumar, U. (2010), "Risk based maintenance decision for periodically tested repairable components subject to hidden failure", *IEEE International Conference on Reliability, Safety and Hazard (ICRESH2010)*, December 14-16, Mumbai, India, pp. 197-204
- **Ghodrati, B.**, Banjevic, D. And Jardine, A.K.S. (2009), "Optimizing product support (spare parts procurement) strategy by considering system operating environment - A case study", *13th IFAC Symposium on Information Control Problems in Manufacturing (INCOM2009)*, Moscow, Russia. June 3-5
- **Ghodrati, B.** and Kumar, U. (2009), "Consideration of operating environment when optimizing spare parts inventories", *15th ISSAT International Conference on Reliability and Quality in Design*, San Francisco, California, USA, August 6-8, pp. 315-320
- Kayrbekova, D., **Ghodrati, B.** and Markeset, T. (2008), "Life cycle cost modeling in oil and gas production facilities in harsh, remote and

sensitive environments”, *European Safety and Reliability Conference (ESREL2008)*, Valencia, Spain, September 22-25

- **Ghodrati, B.** (2008), “Enhancement of mining machineries availability through supportability”, *5th International Conference and Exhibition on Mass Mining*, Luleå, Sweden, June 9-11, pp. 617-626
- **Ghodrati, B.** (2007), “Product support optimization through monitoring of system operating condition”, *Condition Monitoring and Fault Diagnosis Conference (CMFD2007)*, Tehran, Iran, February 26-27, pp. 158-170
- **Ghodrati, B.** (2007), “Spare parts planning and risk assessment associated with non-considering system operating environment”, *6th IMA International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR2007)*, Salford, UK, September 10-11, pp. 80-90
- Toosi, A., **Ghodrati, B.**, (2007), “Monitoring the condition of rolling element and plain bearings”, *4th International Conference on Maintenance*, Tehran, Iran, November 13-14, pp. 41-53
- **Ghodrati, B.** and Kumar, U. (2004), “Product Reliability and The Operating Environment Based Spare Parts Estimation”, *5th IMA International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR2004)*, Salford, UK, April 5-7, pp. 92-103
- **Ghodrati, B.** and Kumar, U. (2004), “Operating environment based maintenance and spare parts planning: A case study”, *International Conference on Advanced Reliability Modeling (AIWARM 2004)*, Hiroshima, Japan, August 26-27, pp. 125-132
- **Ghodrati, B.**, Kumar, U. and Kumar, D. (2003), “Product support logistics based on product design characteristics and operating environment”, *38th Annual International Logistics Conference and Exhibition (SOLE-2003)*, Huntsville, Alabama, USA, August 12-14, pp. 93-102
- **Ghodrati, B.**, Kumar, U. and Kumar, D. (2003), “Product support (Spare parts procurement) strategy based on reliability characteristics and geographical location”, *International Conference on Industrial Logistics*, Vaasa, Finland, June 16-19, pp. 222-235

c) Thesis, technical reports:

- **Ghodrati, B.** (2017), “*Life Estimation of Rolling Stock*”, JVTC project task 1 report, Luleå University of Technology, Luleå, Sweden
- Hoseinie, H., **Ghodrati, B.** and Kumar, U. (2016), “*Reliability Centered Maintenance (RCM) for Automated Mining Machinery*”, VINNOVA project report, Luleå University of Technology, Luleå, Sweden, ISBN 978-91-7583-556-6
- **Ghodrati, B.** (2005), “*Reliability and Operating Environment Based Spare Parts Planning*”, PhD Thesis, Luleå University of Technology, Luleå, Sweden

- **Ghodrati, B.** (2003), “*Product Support and Spare Parts Planning Consideration System Reliability and Operating Environment*”, Licentiate Thesis, Luleå University of Technology, Luleå, Sweden
- **Ghodrati, B.** (1999), “*Rock Engineering*”, Technical research report (Persian), Tehran, Iran
- **Ghodrati, B.** (1993), “*Mine Haulage Optimization*”, Research report (Persian), Tehran, Iran
- **Ghodrati, B.** (1993), “*Technical design of mine shaft in Mehdi-Abad Lead & Zinc Mine-Iran*”, Technical report and M.E. thesis (Persian), Tehran, Iran

d) Book and book chapter:

- **Ghodrati, B.**, Hoseinie, H, and Kumar, U. (2016),” Lean Mining”, book chapter 26 in *The Routledge Companion to Lean Management*, Torbjörn H. Netland and Daryl J. Powel (Eds), Taylor and Francis, London, ISBN-10: 1138920592, ISBN-13: 978-1138920590, pp. 302-310 [Appendix 6]
- **Ghodrati, B.** (2011), “Efficient Product support – Optimum and realistic spare parts forecasting”, book chapter VI in *Replacement Models with Minimal Repair*, Tadge, L, Ouali, M.S., Yacout, S. and Ati-Kadi, D. (Eds), Springer, London, ISBN 978-0-85729-214-8, pp 225-269 [Appendix 7]

e) Workshop and seminar:

- **Ghodrati, B.**, Hoseinie, H, (2016), “Remaining Useful Life (RUL) Estimation of Mining Machinery”, workshop in 4th International Reliability Engineering Conference (IREC), 27-29 April, Tabriz, Iran
- **Ghodrati, B.**, (2017), keynote and workshop presentation “Maintenance Program for Mining Assets - Trends in Technology and Management” in the 12th International Physical Asset Management Conference (www.ipamc.org) in Tehran, Iran, November 14-15, 2017.

f) International editor: invited to develop and edit a special issue

- **Ghodrati, B.** (2015), guest editor of a special issue in “Mining Machinery and Automation” of the *International Journal of Mining, Reclamation and Environment*, with Hoseinie, H., Vol. 29, No. 5, Taylor & Francis, ISSN 1748-0930 [Appendix 8]

5. Education (Teaching)

Teaching different courses and conducting workshops in the subjects of Maintenance and Mining Machinery at different universities such as:

1. Luleå University of Technology, Sweden
2. University of Linnaeus, Sweden

3. University of Zaragoza, Spain
4. University of Tehran, Iran
5. University of Science and Industry, Iran
6. Sahand University of Technology, Iran
7. University of Toronto, Canada

Some of the conducted and presented courses are:

1. Industrial Services and Product Support (PhD level)
2. Applied Reliability Engineering (PhD level)
3. Applied Operation Research (Master's level)
4. Operation and Maintenance Engineering – Hydropower (Master's level)
5. Operation and Maintenance Engineering – Civil and Environmental (Master's level)
6. Risk Analysis and Management – Hydropower (Master's level)
7. Mining Equipment Management (Master's level)
8. Operation and Maintenance Engineering – Mining (Master's level)
9. Mine Automation (Master's level)

Also, joint master program LTU-SUT (Sharif University of Technology) coordinator in Maintenance Engineering and Management, at Luleå University of Technology, 2006 – 2008.

6. Supervision

Since 2006 I have been involved with the supervision of bachelor, master, PhD students and Post-doctoral research fellows at LTU, SUT and University of Toronto (U of T), University of Urmia, Sahand University of technology, and Tarbiat Modares University [Iran], in some cases as the main supervisor and in others as a co-supervisor. The list of supervised students is as follows:

Post – Doctoral:

1. **Hadi Hoseinie** (LTU) – (2013-2015)
He is now working as an Assistant Professor in the Faculty of Mining Engineering, Isfahan University of Technology, Iran
2. **Farzaneh Ahmadzadeh** (LTU) – (2012-2013)
She is now working as an Assistant Professor and lecturer in the Division of Product Realisation, School of Innovation, Design and Engineering, Mälardalen University
3. **Janet Lin** (LTU) – (2011-2012)
She is now working as an Associate Professor in the Division of Operation and Maintenance Engineering - LTU

PhD:

1. Amol Lanke (LTU) – 2012-2017 [Main supervisor]
2. Zeynab Allahkarami (TMU³) – 2016-continues [second main supervisor]
3. Amin Moniri (SUT²) – 2014-2017 [co-supervisor]
4. Seyfoddin Moosazadeh (SUT²) – 2014-2017[co-supervisor]
5. Mohammad-Javad Rahimdel (SUT²) – 2014-2017 [co-supervisor]
6. Ali Nouri (UU¹) – 2014-2016 [co-supervisor]
7. Hussan Saed Hamodi (LTU) – 2011-2014 [co-supervisor]
8. Stephen Mayowa Famurewa (LTU) – 2010-2012 [co-supervisor]
9. Yuan Yang (UofT) – 2010 [co-supervisor]
10. Corey Kiassat (UofT) – 2008-2009 [co-supervisor]
11. Saurabh Kumar (LTU) – 2006-2007 [co-supervisor]
12. Ambika Patra (LTU) – 2006-2007 [co-supervisor]

1- Urmia University; 2- Sahand University of Technology; 3- Tarbiat Modares University

Licentiate:

1. Rajiv Dandotiya (LTU) – 2007-2008 [co-supervisor]
2. Yuan Fuqing (LTU) – 2007-2008 [co-supervisor]

Master:

1. Iman Arastekhouy (LTU – SUT) – 2007-2008 [supervisor] **Improvement of Plant Availability Through Failure Prioritization Approach**
2. Farhang Shafigh (LTU – SUT) – 2007-2008 [supervisor] **Improvement of Plant Availability Through Failure Prioritization Approach**
3. Amir Toosi (LTU – SUT) – 2007-2008 [supervisor] **Applying infrared thermography for monitoring the condition and failure diagnosis of power network**
4. Pouya Seyed-Shobeyri (LTU – SUT) – 2007-2008 [supervisor] **Applying infrared thermography for monitoring the condition and failure diagnosis of power network**
5. Mohammad Rezvani (LTU – SUT) – 2007-2008 [supervisor] **Improving the maintenance productivity of RAJA passenger Train company**
6. Mahmoud Valibeygloo (LTU – SUT) – 2007-2008 [co-supervisor] **Improving the maintenance productivity of RAJA passenger Train company**
7. Mehdi Asghari (LTU – SUT) – 2007-2008 [co-supervisor] **Improving the maintenance productivity of RAJA passenger Train company**
8. Kennet Lian (UofT) – 2008-2009 [co-supervisor] **Optimizing Unilever's Capital/Emergency Spare Stock Sizes**
9. Marine Parahy (LTU) – 2011-2012 [supervisor] **Cost effective availability enhancement of switches and crossings using reliability analysis**

10. Haidar Al Haiany (LTU) – 2015-2016 [supervisor] **RCM Application in Mining Equipment Maintenance Program**
11. Henrik Thunberg (LTU) – 2015-2016 [supervisor] **Reliability based optimum maintenance interval for critical subsystems of mining drilling rigs**

Bachelor:

1. Jason Hao (Uof T) – 2009-2010 [supervisor]
2. Sarah Siyuan Chen (Uof T) – 2008-2009 [co-supervisor]
3. Mehdi Asgharzadeh (Sahand University of Technology, 1998-99)
4. Niloufar Raeis-Hosseini (Sahand University of Technology, 1997-98)

7. Industrial Project works

Some of involved and conducted projects are:

- “Life length Estimation of Rolling Stock” is a research project proposal made to JVTC (Luleå Railway Research Centre) – Trafikverket (2016-Continues).
- EU project in FP7-SST, “Development of a smart framework based on knowledge to support infrastructure maintenance decisions in railway corridors (OptiRail)” (2012-2015).
- “Cost effective availability enhancement of switches and crossings using reliability analysis”. The project was through JVTC in cooperation with ALSTOM, France (2011-2013).
- “Improvement in rail track capacity through effective integrated logistics support (ILS) planning” with Trafikverket (2010-2013).
- Preliminary (feasibility study) project of “Simulation Model for Wireless Network Dependability Improvement” under the sponsorship of NOKIA (2005-2006).
- Feasibility study of ““Reliability Centered Maintenance (RCM) for Automated Mining Machines,” funded by SIP-STRIM, Vinnova (2015-2016).
- “Dependability assurance for mining machinery” as part of the continuation of an SMIFU (Smart Mine of the Future) project (2011-2013).
- Pre-study project “State of the art of Reliability in Mining Machinery”, funded by SMIFU (2011-2012).
- “Sustainable mineral resources - securing the future”, Work package 3 on Lean Mining (Centre for Advanced Mining and Metallurgy-CAMM) (2010-Countinues).

8. Other scientific qualifications

7.1 Examiner and expert assessor assignments

- LTU representative and grading committee member for a PhD disputation at Luleå University of Technology (Aron Chibba), 2017

- PhD grading committee member, and Pie-examiner of licentiate and PhD thesis at LTU (Martin Holmbom), 2013-2016
- Reviewer and member of examination committee of PhD and licentiate thesis (9 thesis from Sweden – KTH and LTU, Canada – Uof T, Norway – Trondheim, UK – Salford and India – IIT), 2007-2015
- PhD students supervision/co-supervision at LTU (Saurabh Kumar, Ambika Patra, Rajiv Dandotiya, Yuan Fuqing, Stephen Mayowa Famurewa, Amol Lanke, Hussan Hamodi), University of Toronto (Corey Kiassat, Yuan Yang), University of Urmia [Iran] (Ali Nouri), and Sahand University of Technology [Iran] (Mohammad-Javad Rahimdel, Seyfoddin Moosazadeh, and Amin Moniri), 2006-2017
- Master and bachelor students supervision at LTU (Marine Parahy, Henrik Thunberg and Haidar Al Haiany), SUT (Iman Arastekhouy, Farhang Shafigh, Amir Toosi, Pouya Seyed-Shobeyri, Mohammad Rezvani, Mahmoud Valibeygloo, Mehdi Asghari), and UofT (Kennet Lian, Sarahsiyuan Chen, Jason Hao), 2008-2016
- Post-Doctoral researcher supervision at LTU (Janet Lin, Farzaneh Ahmadzadeh, and Hadi Hoseinie), 2011-2016
- Examiner of the thesis of all 21 students in the LTU – SUT joint master program, 2007-2008
- Senior Lecturer in the joint master program LTU – SUT (Sharif University of Technology), 2006-2008
- Consulting to IRVING Pulp and Paper company, Saint John – Canada in spare parts provisioning and inventory management, 2009
- Guest lecturer at the University of Linnaeus – Sweden, 2007 – Presenting the reliability course for graduate student
- Working on data analysis project under framework of Swedish National Aviation program which is sponsored by VINNOVA (Research and Innovation for Sustainable Growth, Sweden), SAAB AeroTech, Sweden, 2006
- Consulting to Nokia in modeling and simulation, 2002

7.2 Publishing Scientific Journal assignments

In agreement with the editor in chief and publisher (Taylor & Francis) of the ***“International Journal of Mining, Reclamation and Environment”*** (one of the world leading journals in the mining) I, as a guest editor, developed and edited a special issue of this journal in the topic of “Mine Automation”. This issue contains contributions from world leading mining researchers and industry representatives. This special issue Vol. 29 No. 5 was published in October 2015 (ISSN 1748-0930).

7.3 Conducting international conference assignments

- I was the main actor and the technical program committee chair for the 26th *International Symposium on Mine Planning and Equipment Selection (MPES2017)*, August 29-31, 2017 in Luleå [Appendix 9].

The MPES international Symposium has established, evolved itself and developed to provide an excellent platform where industry, academic and consultants can share knowledge, ideas and solutions relevant for a modern day mining industry.

The proceeding of the conference contains peer-reviewed papers written by experts from industry and academia from 22 countries. The symposium addresses most aspects of surface and underground mining covering issues and challenges related to mining methods, equipment selection, operation & maintenance of mining equipment's and mine environment, etc.

- I was a member of the international organizing committee of *16th International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production - SWEMP 2016*, which was held on October 5-7, 2016 – Istanbul, Turkey.
- Our Division (Operation and Maintenance Engineering) conducted an international conference of *ARMS (Advances in Reliability, Maintenance and Safety)* at LTU on June 2015. I was the Scientific Chair in the organizing committee and also the chair of Mining Machinery secession in this conference.