

Curriculum Vitae

Hany Osman

Assistant Professor since 25-01-2015
Systems Engineering Department
College of Computer Sciences and Engineering
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Education

PhD in Mechanical Engineering (Industrial Engineering Program)

Concordia University, Montréal, Canada, February 2011, GPA = 4.1/4.3

Title: Supply chain reconfiguration and inventory integration in a stochastic environment

M.Sc. in Industrial Engineering

Zagazig University, Zagazig, Egypt, October 2005

Title: Industrial manpower scheduling

B.Sc. in Industrial Engineering and Production

Zagazig University, Egypt, June 1999, very good with distinction, 81.6%,
(Ranked 1st place)

Awards

- ENCS Partial Tuition Fee Remission. Concordia University, fall 2006 - summer 2010.
- Concordia International Fee Remission, Concordia University, fall 2007 - summer 2009.
- Zagazig University Award as being one of the best students in the university (1999)

Declaration of Inventions

Soumaya Yacout, Hany Osman. cbmLAD - A software package for industrial data mining in large scale datasets. École Polytechnique de Montréal. 2017

Certificates in Data Analytics

- IBM-Mastery Certificate in Predictive Data Analytics (August 2017)
- Pearson Education-Mastery Badge in Predictive Data Analytics (August 2017)

Research Interests

- Data analytics.
- Operations research
- Operations management.
- Supply chain design and optimization.
- Nature inspired algorithms and metaheuristics.

Work Experience

Seventeen years of research and teaching experience in operations research, operations management, and data analytics. Through this period, I established a broad background in analysing operational systems and proposing state of the art policies, this includes the following;

- Devising algorithms for knowledge extraction and pattern generations.
- Application of data analytics in Engineering and medical problems
- Designing supply chains and optimizing distribution networks.
- Developing optimal strategies to run inventory systems across supply chain.
- Planning and scheduling procedures for different configurations of production systems.
- Developing computer programs to solve problems related to data mining, inventory, and production using object oriented programming.

Teaching Experience

Courses assigned at KFUPM	Term	Credit hours	Student enrollment
ISE 405 section1 – section 2 Stochastic Systems Simulation Textbook: J. Banks, J. S. Carson, B. L. Nelson, and D. M. Nicol, Discrete-Event System Simulation, 5 th Ed., Prentice Hall, 2010	Fall 2017	6	61
ISE 325 section1 Engineering Statistics Textbook: D.C. Montgomery and C. Runger, “Applied Statistics and Probability for Engineers”, 6 th Edition, 2013	Fall 2017	3	19
ISE 307 section 1 Engineering Economics Textbook: Park, Chan S., Fundamentals of Engineering Economics, 3 rd Ed., Prentice Hall (2013)	Summer 2017	3	16
ISE 325 section1 Engineering Statistics Textbook: D.C. Montgomery and C. Runger, “Applied Statistics and Probability for Engineers”, 6 th Edition, 2013	Summer 2017	3	19
ISE 405 section1 – section 2 Stochastic Systems Simulation Textbook: J. Banks, J. S. Carson, B. L. Nelson, and D. M. Nicol, Discrete-Event System Simulation, 5 th Ed., Prentice Hall, 2010.	Winter 2017	6	63
ISE 325 section1 Engineering Statistics Textbook: D.C. Montgomery and C. Runger, “Applied Statistics and Probability for Engineers”, 6 th Edition, 2013	Winter 2017	3	36
ISE 405 section1 – section 2 Stochastic Systems Simulation Textbook: J. Banks, J. S. Carson, B. L. Nelson, and D. M. Nicol, Discrete-Event System Simulation, 5 th Ed., Prentice Hall, 2010	Fall 2016	6	63

ISE 325 section3 Engineering Statistics Textbook: D.C. Montgomery and C. Runger, “Applied Statistics and Probability for Engineers”, 6 th Edition, 2013	Fall 2016	3	30
SCM 532 section1- Graduate course Supply Chain Cost Management Textbook: Raiborn and Kinney, Cost Accounting Principles, 9 th Ed., SOUTH-WESTERN, Cengage Learning, 2013. Handouts: Relevant research articles	Fall 2016	2	6
ISE 405 section2 Stochastic Systems Simulation Textbook: J. Banks, J. S. Carson, B. L. Nelson, and D. M. Nicol, Discrete-Event System Simulation, 5 th Ed., Prentice Hall, 2010.	Winter 2016	3	31
ISE 307 section 4 Engineering Economics Textbook: Park, Chan S., Fundamentals of Engineering Economics, 3 rd Ed., Prentice Hall (2013)	Winter 2016	3	28
ISE 304 section 1 - section 2 Principles of Industrial Costing Textbook: Raiborn and Kinney, Cost Accounting Principles, 9 th Ed., SOUTH-WESTERN, Cengage Learning, 2013.	Fall 2015	6	65
ISE 201 section 4 Introduction to Ind. and Sys. Eng.	Fall 2015	1	22
ISE 307 section 4 -section 9 Engineering Economics Textbook: Park, Chan S., Fundamentals of Engineering Economics, 3 rd Ed., Prentice Hall (2013)	Winter 2015	3	59

Past Teaching positions

- **Part Time Faculty Member;** Department of Mechanical and Industrial Engineering, Concordia University, Montreal, QC, Canada, Fall 2013.

Courses assigned	Term	Credit hours	Student enrollment
INDU6211- Productions Systems and Inventory Control – graduate course	Fall 2014	4	29

Textbooks: - Factory Physics, Third Edition, Wallace Hopp, Mark Spearman, McGraw-Hill, 2008.
- Inventory Management and Production Planning and Scheduling, Third Edition. Edward A. Silver, David F. Pyke and Rein Peterson, 1998.

- **Teaching Assistant,** Department of Mechanical and Industrial Engineering, Concordia University, Montreal, QC, Canada, Sept. 2007 - May 2010.

- Operations research I
- Theory of operations research (Graduate course)
- Probability and statistics
- Lean manufacturing

- **Teaching Fellowship in Lean Manufacturing;** Department of Mechanical and Industrial Engineering, Concordia University, Montreal, QC, Canada, winter 2009.

Lecturer, Industrial Engineering Department, Zagazig University, Egypt, March 2001 – Aug. 2006.

- Operations research I, II
- Probability and statistics I, II
- Production planning and inventory management

- **Graduate Seminar in University Teaching (25 Hour)**, Concordia University, Montreal, QC, Canada, Winter 2011.

Research positions

Postdoctoral Fellow; Department of Mathematics and Industrial Engineering, École Polytechnique de Montréal, QC, Canada, October 2012- September 2013.

- The pattern generation problem in logical analysis of large data sets is investigated. New algorithms for pattern generation and selection are devised using decomposition techniques and artificial intelligence approaches.
- The developed algorithms have been applied efficiently in conditional based maintenance to indicate the critical conditions of equipment and to predict future failure.
- A commercial software package for pattern recognition, diagnosis and prognosis, knowledge extraction from datasets is developed. The intellectual property of this software is under processing at Ecole PolyTechnique de Montreal, Canada.

Postdoctoral Fellow; Odette School of Business, University of Windsor, Windsor, ON, Canada, August 2011- April 2012.

- The balancing problem of automated transfer lines is investigated to minimize the non-productive time.
- Three algorithms are developed; Benders decomposition algorithm, hybrid Benders-ant colony optimization algorithm, and nested ant colony optimization algorithm.

Postdoctoral Fellow; Department of Mechanical and Industrial Engineering, Concordia University, Montréal, QC, Canada, May 2011- July 2011.

- The economic lot and delivery scheduling problem is investigated for a three stage supply chain facing a stochastic environment.
- A new supply chain periodic review system is established. The system specifies the shipping frequencies, the production sequences, the fill rates, the safety amounts, and hence the order up to level policies at each member of the supply chain.

Research Assistant; Department of Mechanical and Industrial Engineering, Concordia University, Montreal, QC, Canada, Sept. 2006 - Feb. 2011.

The research conducted in my Ph.D study tackles three problems; a supply chain reconfiguration problem, a joint inventory-production problem, and a safety stock placement problem. Through this research, the followings have been developed;

- A strategic supply chain reconfiguration and multi-criteria supplier selection model that aims at improving the on-time delivery performance of a supply chain.
- A novel formulation of the economic lot and delivery scheduling problem using the quadratic assignment representation.
- Centralized and decentralized safety stock placement models to establish the fill rates at multiple-sourced stock points facing variable demand and lead time.

- A modified Benders decomposition algorithm to solve large scale bilinear goal programming model.
- A hybrid algorithm that combines linearization schemes, outer approximation approach and Benders decomposition technique to solve mathematical models comprising nonlinear, bilinear and binary polynomial terms.

Research Assistant; Department of Industrial Engineering, Zagazig University, Zagazig, El-Sharkia, Egypt, 03/2001 - 08/2006. During this period, the followings have been developed;

- A timetable generated by solving mathematical models to schedule nurses in Zagazig University Hospitals.
- A knowledge-based system to schedule multi-skilled workforce with dynamic demand.
- A simulation study on cellular manufacturing systems

Publications

Articles published in international journals

Ragab, A., Ouali, M.-S., Yacout, S., **Osman, H.** 2017. Pattern-based prognostic methodology for condition-based maintenance using selected and weighted survival curves. *Quality and Reliability Engineering International*. DOI: 10.1002/qre.2127

Ragab, A., Ouali, M.-S., Yacout, S., **Osman, H.** 2016. Prognostics of Multiple Failure Modes in Rotating Machinery Using a Pattern-Based Classifier and Cumulative Incidence Functions. *Journal of Intelligent Manufacturing*. DOI: 10.1007/s10845-016-1244-8.

Ragab, A., Ouali, M.-S., Yacout, S., **Osman, H.** 2016. Remaining useful life prediction using prognostic methodology based on logical analysis of data and Kaplan–Meier estimation. *Journal of Intelligent Manufacturing*. 27(5), 943–958

Osman, H., Baki, M., F., 2014. Balancing transfer lines using Benders decomposition and ant colony optimization techniques. *International Journal of Production Research*. 52(5), 1334-1350.

Osman, H., Demirli, K., 2012. Economic lot and delivery scheduling problem for multi-stage supply chains. *International Journal of Production Economics*. 136(2), 275–286.

Osman, H., Demirli, K., 2012. Integrated safety stock optimization for multiple sourced stockpoints facing variable demand and lead time. *International Journal of Production Economics*. 135(1), 299-307.

Osman, H., Demirli, K., 2010. A bilinear goal programming model and a modified Benders decomposition algorithm for supply chain reconfiguration and supplier selection. *International Journal of Production Economics*, 124, 97–105.

Articles published in international conferences

Ragab, A., Ouali, M.-S., Yacout, S., & **Osman, H.** 2015. Multiple Failure Modes Prognostics Using Logical Analysis of Data, RAMS 2015, Florida, USA.

Ragab, A., Ouali, M.-S., Yacout, S., & **Osman, H.** 2014. Condition-Based Maintenance Prognostics Using Logical Analysis of Data, ISERC 2014, May 31 to June 4, 2014, Montreal, Canada.

Osman, H., Baki, M. F. 2013. A linearization and decomposition based approach to minimize the non-productive time in transfer lines. *World Academy of Science, Engineering and Technology* 74, 440-445

Ibrahim, S., Khater, M., **Osman, H.**, 2005. A knowledge-based system to schedule multi- skilled labor with variable demand. Proceeding of IPROMS, 351-356, Cardiff University, U.K.

Ibrahim, S., Khater, M., **Osman, H.**, 2005. Application of manpower scheduling in manufacturing processes. Al-Azhar University Engineering Journal, Egypt. 8 (2), 24-34.

Ibrahim, S., Elawady, H., Elgohary, G., **Osman, H.**, 2003. Simulation of cellular manufacturing systems" Proceeding of the 7th Conference on Theoretical & Applied Mechanics, Academy of Scientific Research & Technology, Egypt, 150-162.

Articles submitted to international journal

Osman, H., Baki, M., F., A cuckoo search algorithm to solve transfer line balancing problems with different cutting conditions. Submitted to IEEE Transactions in Engineering Management. May 2017.

Osman, H., Yacout, S. Ant Colony algorithm for patterns generation in logical analysis of data. Submitted to Annals of Operations Research. June 2017

Papers in Progress

Osman H., Pirim, H., Logical analysis of bariatric surgeries.

Osman H., Decomposition Techniques to generate patterns in logical analysis of data.

Osman, H., Demirli, K., Economic lot and delivery scheduling problem in multi-stage supply chains under stochastic demand and lead time.

Osman, H., Yacout, S., Improving the performance of railway services using logical analysis of data.

Research grant:

Grant name: KFUPM Start-Up Research Grant - Sept. 2015 – July 2016

Title: Developing decomposition techniques and nature inspired algorithms to generate the patterns used in Logical Analysis of Data

Budget: 76,000 SAR

Skills

- Programming

- Advanced skills in analytical and mathematical software; i.e AMPL, GAMS and Matlab.
- Mastery skills in IBM SPSS-Modeler, a Predictive Analytics Software
- Advanced skills in ARENA.
- Implemented systems based functional analysis and use cases using C++, visual Basic, and expert systems

- Professional

- Capable of creating an interactive student-centered learning environment.
- Strong mathematical and analytical skills with a broad experience in operations research and nature inspired algorithms.
- Capable of transforming analytical results into strategies, conclusions and recommendations.

- High professional skills in stating and analysing problems, and developing efficient solution techniques.
 - Capable of conducting case studies, surveys, comparative studies, and benchmarking.
 - Capable of developing applied research, writing technical reports, and publishing articles in international journals.
 - Excellent interpersonal, communication, and presentation skills.
 - Capable of directing team works and supervising projects.
 - High level of flexibility and adaptability with different working environments.
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Projects and Trainings

- Strategic Planning Optimization Model for Refined Products Distribution System. Saudi Aramco. KSA. January 2017- December 2017, ongoing project.
 - Optimizing the performance of the railway at AMIC by using data mining and advanced artificial intelligence techniques. Dec.2013 – Nov. 2014. (One year postdoctoral fellowship)
 - Improving vendor supplied material flow, Pratt and Whitney Canada, Montreal, QC, Canada, 2008. (Project - three months).
 - Inventory management using barcode technology, Zagazig University Hospitals, Zagazig, Egypt, 2005. (Project - one year).
 - Developing nurse schedules and timetables, Zagazig University Hospitals, Zagazig, Egypt, 2003. (Project - one year).
 - Studying layout of automotive assembly lines. Daewoo Motors, 6th of October City, Egypt, 1999. (Training - two months).
 - Material flow optimization. El-Shereif Electrical Company. 10th of Ramadan city, Egypt. 1998. (Internship - four months)
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Volunteer Works

- Member in the council of trustees of Muslim Schools of Montreal. Three years
 - Design long and short term school plans.
 - Collect funds for the school.
 - Monitor the renovation works in the school.
 - Organize social activities.
- Member in Hippy Quebec. Two years.;
 - Share in organizing community parties and outdoor activities.

Citations by Google Scholar (October-2017)

Cited by

