

Ahmed Attia
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Education

- **Ph.D. in Industrial Engineering**, May 2017
Systems Engineering Dept. (Industrial and Systems Engineering program),
King Fahd University of Petroleum and Minerals, Saudi Arabia (**GPA 3.9/4.0**).
Ph.D. dissertation: "An Integrated Stochastic Multi-Objective Upstream Oil & Gas Supply Chain Model for Tactical Decision Making".
- **M.Sc. in Industrial Engineering**, March 2011
Industrial Engineering and Systems Dept.,
Zagazig University, Egypt.
Title of thesis: "Parts Classification Based on Solid Model and Neural Networks".
- **B.Sc. in Industrial and Production Engineering**, June 2002
Mechanical Engineering Dept. (Industrial Engineering program),
Zagazig University, Egypt.
Very Good with honor degree, **84.39%**, **1st Rank**.

Professional Experiences and Positions

- January 2013 – now: Lecturer-B & Ph.D. Student in Systems Engineering Dept., King Fahd University of Petroleum and Minerals, Saudi Arabia.
- January 2013 – now (on leave): Assistant lecturer in Industrial Engineering Department, Zagazig University, Egypt.
- March 2011 – January 2013: Assistant lecturer in Industrial Engineering Department, Zagazig University, Egypt.
- January 2003 – March 2011: Demonstrator in Industrial Engineering Dept., Zagazig University, Egypt.

Areas of Interest

- Supply chain modelling and optimization.
- Inventory and production control.
- Quality control.

Ph.D. Research Experience

The objective of the dissertation was to develop a practical multi-objective, multi-dimension, multi-echelon, multi-period and multi-product stochastic programming model for tactical planning decisions of the hydrocarbon supply chain (HCSC). The proposed model has been applied to a real world case study from the Saudi Arabia HCSC. The model was developed through main phases;

- *The first phase* a multi-objective deterministic (MOD) model was formulated with appropriate realistic constraints and the validity and applicability of the proposed MOD model was demonstrated on Saudi Arabia HCSC.
- *The second phase* a multi-objective stochastic (MOS) model was formulated accounting the uncertainty on the prices and demands of oil, gas, and gas byproducts and the validity and applicability of the proposed MOS model was demonstrated on Saudi Arabia HCSC.
- *The third phase* a multi-objective risk management (MOR) model was formulated by including conditional value at risk (CVaR) as a risk measure in the objective functions, and the validity and applicability of the proposed MOR model was demonstrated on Saudi Arabia HCSC.

M.Sc. Research Experience

The objective of the research work in my M.Sc. has been to demonstrate how part machining features information can be exploited to interpret part families in group technology. The proposed methodology works in three main phases;

- *The first phase* takes a neutral file in STEP-AP203 format as input and restructures it as an intermediate model in a suitable structure database to extract the geometric information of machining features.
- *The second phase* starts by converting the extracted geometric information into 12-node vector scheme as input identifiable to neural network (NN). The vector is then fed into a well-trained back propagation neural network (BP-NN) for feature recognition.
- *The third phase* accepts the recognized features from the second phase and their orientations (directions) from the first phase, then forming a similarity matrix between parts as a normalized form of part/features matrix. Parts similarity matrix is fed into self-organized map neural network (SOM-NN) for grouping similar parts and the results are evaluated by the degree of similarity between parts inside groups, variance and grouping index.

List of Publications

Peer reviewed journal publications

- Duffuaa, S.O., **Attia, A.M.**, and Ghaithan, A.M., 2017. Optimal Design of Cause Selecting Control Charts for Monitoring the Processes of Coating Fire Extinguishers: A case Study. *Quality Engineering*, In press.
- Ghaithan, A.M., Duffuaa, S.O., and **Attia, A.M.**, 2017. Multi-objective Optimization Model for Downstream Oil and Gas Supply Chain. *Applied Mathematical Modelling*, 52, 689-708.
- Alfares, H.K., and **Attia, A.M.**, 2017. A supply chain model with vendor-managed inventory, consignment, and quality inspection errors. *International Journal of Production Research*, 55(19), 5706-5727.
- Nawara, G., ElBaz, M.A., **Attia, A.M.**, 2010. Parts Classification Based on Solid Model and Neural Networks. *Contemporary Engineering Sciences*, 3 (8), 395-417.

Submitted

- Duffuaa, S.O., **Attia, A.M.**, and Ghaithan, A.M. Mathematical Models for Robust Design of Cause Selecting Control Chart.

(Submitted to: *Quality and Reliability Engineering International (ISI)*, 1st round of revision)

- Duffuaa, S.O., **Attia, A.M.**, and Ghaithan, A.M. Mathematical Programming Models Addressing Uncertainty in Hydrocarbon Supply Chains – A Review.
(Submitted to: *Journal of Operational Research Society (ISI)*, 1st round of revision)
- **Attia, A.M.**, Duffuaa, S.O., and Ghaithan, A.M. Multi-Objective Optimization Model for Crude Oil and Natural Gas By-products Supply Chain.
(Submitted to: *Annals of Operations Research (ISI)*, 1st round of revision)

Under preparation

- Alfares, H.K., and **Attia, A.M.** Utilization of TOPSIS to assist in selection of X-bar chart design parameters.
- Duffuaa, S.O., **Attia, A.M.**, and Abdelaal, M. Robust economic design of np-charts.
- **Attia, A.M.**, and Duffuaa, S.O. Tactical Planning of Upstream Hydrocarbon Supply Chain Based on a Stochastic Multi-Objective Optimization Model.
- **Attia, A.M.**, and Duffuaa, S.O. Risk Management of Crude Oil and Natural Gas By-products Supply Chain.

Funded Projects

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

Team: H. Osman and **A. Attia**, Funded by: KFUPM, Status: In Progress

Teaching Experience

- Assistant Professor, Systems Engineering Dept., KFUPM
 - ISE447: Decision Making
 - ISE307: Engineering Economic Analysis
- Lecture-B, Systems Engineering Dept., KFUPM:
 - OM210: Operations management (lec)
 - ISE405: Stochastic systems simulation (lab: Simulation with ARENA)
- Teaching Assistant, Industrial Engineering Dept., Zagazig University:

• Probability and statistics I	• Statistical quality control
• Operation research I	• Discrete systems simulation
• Production planning and control	• Replacement and assessment analysis
• Engineering Economy	• Facilities layout
• Project management	

Graduate Courses

- Ph.D. program, Systems Engineering Dept., KFUPM:

• ISE502 Probabilistic modelling.	• MATH560 Applied regression and experiment design.
• ISE534 Advanced quality control.	• COE588 Modelling and simulation.
• MATH513 Mathematical methods for engineers.	• ISE521 Non-linear programming and application I
• ISE501 Deterministic OR	• ISE527 Decision making.
• ISE508 Advanced production systems and inventory control.	

- M.Sc. program, Industrial Engineering Dept., Zagazig University:
 - Advanced computer programming.
 - Advanced mathematics.
 - Technical English language.
 - Nonlinear and dynamic programming.
 - Production planning and control.
 - Simulation and its applications.
 - Computer applications in production planning and control.

Training Work-Shops

- Hydrocarbon Supply Chain Optimization Forum, December 17-18, 2014, Khobar. (*Speaker*)
- Effective Learning, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Methods of Scientific Research, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Communication Skills in Different Teaching Methods, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Competitive Research Projects, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Using Technology in Teaching, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Quality Criteria in Teaching, Faculty and Leadership Development Project, Zagazig University, Egypt.
- Research Project Management, University Project Management Unit, Zagazig University, Egypt.

Awards

- Award of the best demonstrator in the department.
- Zagazig University Award as being one of the best graduates in the university.
- Faculty of Engineering Award as being one of the best students in the faculty.

Computer Skills

- Optimization software: Matlab, LINGO, and GAMS
- Simulation software: Arena, Pro-Model, IGrafx
- Statistical software: SPSS, Minitab
- Microsoft office, Microsoft Visio

Languages

- Arabic
- English
- German (Beginner)

References

1. Dr. Salih Duffuaa, Professor (ISE)

Systems Engineering Dept., College of Computer Science & Engineering, King Fahd University of Petroleum and Minerals (KFUPM), P.O. Box 1924, Dhahran, 31262, Saudi Arabia. Phone: +966-13-860-2692, Fax: +966-13-860-2965, Email: duffuaa@kfupm.edu.sa

2. Dr. Shokri Selim, Professor (ISE)

Systems Engineering Dept., College of Computer Science & Engineering, King Fahd University of Petroleum and Minerals (KFUPM), P.O. Box 1924, Dhahran, 31262, Saudi Arabia. Phone: +966-13-860-2324, Fax: +966-13-860-2965, Email: selim@kfupm.edu.sa

3. Dr. Muhammad Ben-Daya, Professor (ISE)

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4. Dr. Hesham K. Al-Fares, Chairman & Professor (ISE)

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5. Dr. Hany Osman, Assistant Professor (ISE)

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