

AHMED R. ABDULAAL

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Summary

Ph.D. Candidate with hands-on experience in energy audits and research including: applications of data-mining and machine learning, System modeling and statistical analysis, development of creative algorithms, and multi-objective optimization.

Education

Doctor of Philosophy, Industrial Engineering (GPA: 3.8) University of Miami – Coral Gables, FL	2016 (Expected)
Master of Science, Industrial Engineering (GPA: 4) Master of Business Administration (GPA: 4) University of New Haven – West Haven, CT	2012
Bachelor of Science, Mechanical Design and Production Engineering Cairo University – Giza, Egypt	2008

Experience

Research Assistant University of Miami Industrial Assessment Center – Coral Gables, FL <ul style="list-style-type: none">Utilized data mining methods in time-series energy data applications including behavior identification, waste detection, and outlining savings opportunities.Taught and Led 5 graduate students and tens of undergraduate students in energy engineering and in operating the energy assessment laboratory.Conducted energy audits and data analysis to more than 70 industrial and commercial facilities in Florida and Puerto Rico.	2012 to Present
Operations Engineering Intern Chabaso Bakery – New Haven, CT <ul style="list-style-type: none">Analyzed production data and identified bottlenecks and defined production goals.Conducted time study and redesigned facility layout to reduce wastes.	2012
Graduate Research and Teaching Assistant University of New Haven, Department of Industrial, Systems and Multidisciplinary Engineering – West Haven, CT <ul style="list-style-type: none">Conducted research in the life cycle assessment of different vehicle technologies and lithium availability.Instructed coursework in analytical decision making using programming tools.	2010 to 2012

Publications

- A. Abdulaal, S. Asfour. "A Fuzzy Genetic Algorithm Classifier: The Impact of Time-Series Load Data Temporal Dimension on Classification Performance." *2016 IEEE 15th International Conference on Machine Learning and Applications (ICMLA), Anaheim, CA, 2016* (Accepted).
- A. Abdulaal, M. Cintuglu, S. Asfour, O. Mohammed. "Solving the Multi-Variant EV Routing Problem Incorporating V2G and G2V Options." *IEEE Transactions on Transportation Electrification* (Early Access).
- A. Abdulaal, S. Asfour. "A linear optimization based controller method for real-time load shifting in industrial and commercial buildings." *Energy and Buildings* 110 (2016): 269-283.
- J. Buitrago, A. Abdulaal, S. Asfour. "Electric load pattern classification using parameter estimation, clustering and artificial neural networks." *International Journal of Power and Energy Systems* 35.4 (2015): 167-174.
- A. Abdulaal, J. Buitrago, S. Asfour. "Electric load pattern classification for demand-side management planning: A hybrid approach." *Proceedings of International Symposium on Advances in Power and Energy Systems* (2015): 831-012.
- A. Abdulaal, "Solving a Facility Layout Problem for a Manufacturer by Application of a Meta-heuristic and Lean Objectives." M.S. thesis, Dept. ISME, Univ. New Haven (2012).

Presentations & Conference Talks

- Abdulaal, Ahmed, "Energy Auditing and Unlocking Benefits in the Electric Demand Buying Policies for Smart Buildings." Presented at the Supply Chain Month Symposium, ISM-South Florida, Inc., Coral Gables, FL, Mar. 16, 2016.
- Abdulaal, Ahmed, Jaime Buitrago, and Shihab Asfour. "Electric load pattern classification for demand-side management planning: A hybrid approach." Presented at the International Symposium on Advances in Power and Energy Systems, IASTED, Marina del Rey, CA, Oct. 26-27, 2015.
- Abdulaal, Ahmed, "Solving a Facility Layout Problem for a Manufacturer Applying a Meta-Heuristic and Lean Objectives" Presented at INFORMS Annual meeting 2012, Phoenix, AZ, Oct. 14-17, 2012.

Certifications

Industrial Assessment Center Program U.S. Department of Energy	2016
NFPA 70E Electrical Safety in the Workplace National Fire Protection Association	2015
Green Belt in Six Sigma Institute of Industrial Engineers	2012
Quality Engineering University of New Haven	2011

Accomplishments

- Developed the first optimization algorithm in published studies to achieve instantaneous and autonomous load shifting in real time.
- Proposed a creative approach to clustering analysis and classification which outperformed the state of the art methods for time-series data of high temporal dimension.
- Developed a hybrid method combining Markov models and evolutionary algorithms to breakdown and solve NP-Hard multi-variate electric vehicle routing problems while considering charging uncertainties.
- Assisted in grant proposal writing which was approved for a period of 5 years and sums up to 3 million dollars in funding.
- Awarded 3 grants totaling more than \$190,000 for master's and Ph.D. studies.

Skill Highlights

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| • MATLAB/SIMULINK and programming languages (e.g. Python) | • Classification algorithms | • Statistical analysis tools including SPSS and Minitab |
| • Markov models (HMM and MDP) | • Evolutionary computation | • LP, MILP, and NLP |
| | • SOLIDWORKS and ABAQUS | • Data Clustering |