

LENA ABU-EL-HAIJA

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CURRENT POSITION

Head of Department *September 2021 - Present*
Assistant Professor *September 2019 - Present*
Industrial Engineering, German Jordanian University

EDUCATION

Doctor of Philosophy, Industrial and Systems Engineering *August 2014 - July 2019*
North Carolina State University
Minor in Operations Research with focus on its application to Health Systems Engineering

Master of Science, Industrial and Operations Engineering *August 2012 - May 2014*
University of Michigan, Ann Arbor

Bachelor of Science, Industrial Engineering *August 2008 - May 2012*
University of Iowa
Minors in Business Administration and Mathematics

RESEARCH EXPERIENCE

Pancreatic Cancer Screening Evaluation Tool *May 2017 - Present*
Industrial and Systems Engineering *North Carolina State University*

- Built a simulation model of pancreatic cancer progression (Coded in Python 3.6).
- Established the framework for high-risk patients of pancreatic cancer into potentially developing the disease creating a natural history model.
- Evaluated different pancreatic cancer screening policies via simulation.

Other Research Projects *August 2015 - Present*
Industrial and Systems Engineering *North Carolina State University*

- Disparities in computer science education in the public high school system in Wake County, North Carolina.
- Agent based simulation of a patient's progression from the first episode of acute pancreatitis until chronic pancreatitis (Coded in Matlab).
- Optimization of Pediatric Intensive Care Unit nurses schedules.

Graduate Student Research Assistant *September - December 2013*
Industrial and Operations Engineering *University of Michigan*

- Patient load distribution for primary care outpatient clinics into different teams based on load exerted onto the system. The problem was approached as a stochastic mixed integer program.
- With the use of Matlab and Cplex, generated samples of patient loads and solved the mixed integer program for each.
- With the use of graph theory heuristics, developed a dividing load mechanism that works on the solutions of the mixed integer program.

TEACHING EXPERIENCE

Assistant Professor <i>Operations Research (Undergraduate level)</i> <i>Innovation and Entrepreneurship (Graduate level)</i>	September 2019 - Present <i>GJU</i>
Graduate Teaching Assistant <i>Deterministic Models in Industrial Engineering (Undergraduate level)</i>	January - May 2017 <i>NC State University</i>
Graduate Teaching Assistant <i>Introduction to Operations Research (Graduate level)</i>	August - December 2016 <i>NC State University</i>
Graduate Teaching Assistant <i>Financial Engineering I (Graduate level)</i>	January - May 2013, 2014 <i>University of Michigan</i>
Undergraduate Teaching Assistant <i>Manufacturing Systems (Undergraduate level)</i>	January - May 2012 <i>University of Iowa</i>

INDUSTRY EXPERIENCE

Industrial Engineering Intern <i>Allsteel Inc.</i>	May - August 2011 <i>Muscatine, IA</i>
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- 10 weeks long. The summer project dealt with an overflow of inventory due to systematic errors: the team had to optimize the orders of raw materials within the constraints of buffer, standard size of material, and storage space. Accomplishments include fixing the existing system, and installing a new computerized system. Project annual saving 107,000 dollars. Mini-projects include: resetting members rates on a production line, and implementing 100 percent audit procedure.

Intern <i>Specto Ltd.</i>	June - August 2010 <i>Amman, Jordan</i>
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- Worked on the administration team, which was responsible for designing and deploying a flow where exams are administered: exam scheduling, secure electronic transmission of exam data, and keeping records of examinees. Marketed the ICDL program to schools of the nation. Audited existing testing centers. Researched all news items and accomplishments of the office since it became sub-licensee to the UNESCO Cairo Office.
- Worked on Specto ICDL Administration System on the user interface to guarantee a user-centered design. Also worked on the design of Specto Automated Testing System website along with other designers and programmers.

ADMINISTRATIVE ROLES

<i>School of Applied Technical Sciences</i>	<i>GJU</i>
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- Committee Head for Joint Master Program with Magdeburg-Stendal University of Applied Sciences (March 2021-Present)
- Department Representative in School Council (2020/2021)
- German Accreditation Committee Member (June 2020 - April 2021)
- School Representative in University Council (2019/2020)
- IISE Student Chapter Faculty Advisor (2019/2020)

HONORS AND AWARDS

- Winter Simulation Conference 2019 Diversity Award

- Edward P. Fitts Fellowship, August 2015 till August 2016
- Provost Fellowship, August 2014 till August 2015
- U of I Tuition Scholarship: Fall 2009 till Spring 2012
- UI Tuition Sch-Engineering: Fall 2011 till Spring 2012
- National SMART Grant: Fall 2010 till Spring 2011
- Academic Competitive Scholarship: Fall 2009 till Spring 2010
- Dean's List: Spring 2009, Fall 2009, Spring 2011

PRESENTATIONS, PROCEEDINGS, AND PAPERS

- Abu-El-Haija, L., Payton, F.C., (2021) *A Plan to Offer Computer Science Classes in All North Carolina High Schools*. Issues in Science and Technology, 37(2).
- Abu-El-Haija, L., Ivy, J., Park, W. (2020) *SEER Baser Pancreatic Cancer Resectability Prediction Tool*. IIE Annual Conference. Proceedings (pp 1-6). Institute of Industrial and Systems Engineering (IISE).
- Abu-El-Haija, L., Ivy, J., Ozaltin, O., Park, W. (2019) *The Effect of the Distribution of the Inverse Growth Rate on Pancreatic Cancer Progression*. In 2019 Winter Simulation Conference (WSC) (pp. 1044-1054). IEEE.
- Abu-El-Haija, L., Payton, F.C. (2018) *Computer Science Enrollment in Magnet High Schools: Issues of Curricula Clusters, Equity, and Pathways*, the fourth international conference on Research in Equity and Sustained Participation in Engineering, Computing, and Technology.
- Abu-El-Haija, L., Ivy, J., Ozaltin, O., Park, P. (2018) *PRECiSE: PancREatic Cancer Prioritization and Screening Evaluation Tool*, Conference presentation at the Institute of Industrial and Systems Engineering annual meeting, Orlando, FL.
- Abu-El-Haija, L., Ivy, J., Ozaltin, O., Park, P. (2018) *PRECiSE: PancREatic Cancer Prioritization and Screening Evaluation Tool*, Conference presentation at the INFORMS annual meeting, Phoenix, AZ.
- Abu-El-Haija, L., Payton, F.C., Hoagland, M. (2019) *Pathways, Participation, and Policy: Considerations for High School Computer Science Enrollment*, IEEE Transactions on Education (submitted).
- Abu-El-Haija, L., Ivy, J., Park, W. *SEER Based Pancreatic Cancer Progression Model*, preparing for submission.
- Abu-El-Haija, L., Ivy, J., Park, W. *Evaluation of Pancreatic Cancer Screening Policies*, preparing for submission.