Mohamed El Banani

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EDUCATION

University of Michigan, Ann Arbor, Michigan   Sep 2016 – Present

Master of Science in Computer Science and Engineering
- Cumulative GPA: 4.00 / 4.00
- Relevant Coursework: Foundations of Artificial Intelligence, Advanced Topics in Computer Vision, Algorithms

Georgia Institute of Technology, Atlanta, Georgia   Aug 2012 – Dec 2015

Bachelor of Science in Mechanical Engineering with Highest Honors
- Minor: Computing and Intelligence
- Cumulative GPA: 3.93 / 4.00
- Relevant Coursework: Machine Learning, Introduction to Cognitive Science
- Study Abroad: Georgia Tech Lorraine, Metz, France (Spring 2014)

RESEARCH EXPERIENCE

Artificial Intelligence Laboratory, Ann Arbor, Michigan   May 2016 – Present

Graduate Student Research Assistant
- Working on problems related to using high-level reasoning to enhance perception algorithms

Computational Perception Lab, Atlanta, Georgia   Sep 2014 – Dec 2015

Undergraduate Research Assistant
- Designed and developed a virtual environment for the block design task setup
- Implemented a computational cognitive agent in Java that models some aspects of human cognition during problem solving on the block design task
- Administered a series of intelligence tests to collect human participant data for a research study

Inan Research Lab, Atlanta, Georgia   Oct 2015 – Dec 2015

Undergraduate Research Assistant
- Extracted patterns from heart monitor data that assisted in the characterization of multiple heart disorders including Eclampsia (a potentially fatal pregnancy disorder)
- Automated the feature extraction from heart monitor data (BCG and ECG signals)

Sulchek BioMEMS and Biomechanics Lab, Atlanta, Georgia   Jan 2013 – Dec 2013

Undergraduate Research Assistant
- Improved the 3-D tracking of micro-scale particles in a microfluidic device using 2-D video images in MATLAB
- Fabricated five acrylic Stirling engine prototypes using laser cutting and CNC machining
- Derived governing equations for Stirling engine operation in terms of its dimensions using fluid dynamics models

PUBLICATIONS

REFEREED JOURNALS

1. Three-dimensional particle tracking in microfluidic channel flow using in and out of focus diffraction
   By Bushra Tasadduq, Gonghao Wang, **Mohamed El Banani**, Wenbin Mao, Wilbur Lam , Alexander Alexeev, and Todd Sulchek
   Flow Measurement and Instrumentation, 2015. (pdf)

REFEREED ABSTRACTS AND PROCEEDINGS

2. A Computational Exploration of Problem-Solving Strategies and Gaze Behaviors on the Block Design Task
   By Maithilee Kunda, **Mohamed El Banani**, and James M. Rehg
   CogSci 2016: Proc. 38th annual meeting of the Cognitive Science Society, 2016 (pdf)

3. A Pilot Study of a Modified Bathroom Scale to Monitor Cardiovascular Hemodynamic in Pregnancy
   By Odayme Quesada, **Mohamed El Banani**, James Heller, Shire Beach, Mozziyar Etemadi, Shuvo Roy, Omer Inan, Juan Gonzalez and Liviu Klein.
   JACC 2016: Journal of the American College of Cardiology, 2016 (abstract)

POSTERS

4. Building Computational Models to Explain Atypical Patterns of Cognition and Behavior on the Block Design Task
   By **Mohamed El Banani**, James M. Rehg, and Maithilee Kunda.
   Presented at the Autism Research Symposium held by the Atlanta Autism Consortium, 2015.

TALKS	• {Human, Soar}-in-the-loop: Visual Guidance through Reasoning
	Given at the 37th Soar Workshop, Ann Arbor, Michigan, June 2017. (Slides)
	• Perception, Attention and Problem Solving on the Block Design Task
	Given at the 36th Soar Workshop, Ann Arbor, Michigan, June 2016. (Slides)

ACADEMIC SERVICE

- Subreviewer: IJCAI 2016, and AAAI 2016
- Student Vounteer: CogSci 2016

HONORS & AWARDS

- Faculty Honors, Georgia Institute of Technology   2012 – 2015
- President's Undergraduate Research Award, Georgia Institute of Technology   Spring 2015

SKILLS

PROGRAMMING Python, MATLAB, Java, C++, C

SOFTWARE PyTorch, Soar, TensorFlow, WEKA, MatConvNet, AutoCAD, Autodesk Inventor

LANGUAGES Arabic (Native), English (Near-Native), French (Intermediate)

CAMPUS ACTIVITIES

University of Michigan Mentorship Program, Ann Arbor, Michigan   Sep 2017- Present
Faculty/Staff Mentor
  • Mentored a group of 7 incoming freshmen through assisting them with questions about adjusting to university, and different work and research opportunities they can pursue.
ASEE University of Michigan Student Chapter, Ann Arbor, Michigan   Jan 2017- Present
Vice-President
  • Assisted with planning the "Exploring the Teaching Side of Academia" Lecture Series.
Lunch and Lab with a Graduate Student, Ann Arbor, Michigan   Jan 2017- May 2017
Graduate Student Mentor
  • Met with 4 undergraduate students to discuss graduate life, research, and the application process.
Graduate Rackham International, Ann Arbor, Michigan   Jan 2017- May 2017
Member and Mentor
  • Served as a mentor to one student as part of a program aimed at providing assistance to new International Graduate students who require support in adjusting to their new environment.