

# Mahmoud Al-Ismail

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## Education

- **Carnegie Mellon University**  
*Bachelor of Science in Computer Science* Aug. 2012 – Dec. 2016
  - Minor in Mathematical Sciences
  - Key Courses: Machine Learning, Perceptual Computing, Algorithm Design and Analysis, Parallel and Sequential Data Structures and Algorithms, Computer Systems, Web Application Development, Constructive Logic, Graph Theory, Abstract Algebra, and Combinatorics
- **University of Pittsburgh**  
*International Guest Student at Dietrich School of Arts and Sciences* Spring 2015
  - Exchange semester as a guest where I pursued cultural studies and breadth courses

## Professional Experience

- **Siemens W.L.L** Doha, Qatar  
*Software Engineer* Aug. 2016 – Nov. 2016
  - Providing technological solutions to facilitate human resources and decision-making
  - Developing complex reporting tools for management to better allocate engineers on projects
  - Building state-of-the-art web-based time reporting application to be widely used by Siemens employees and third-parties
  - Demonstrating high communication and management skills to facilitate the delivery of applications and tools
  - Providing constant training and improvements for tools and applications I am developing
- **Carnegie Mellon University** Doha, Qatar  
*Course Assistant for 15-437 Web Application Development* Jan. 2016 – May 2016
  - Assisted in designing the course material and assignments
  - Provided help in teaching the course by holding weekly workshops for students
  - Met students almost daily outside of classroom to explain concepts and provide help
  - Graded students work and provided individual feedback
- **Qatar Computing Research Insitute** Doha, Qatar  
*Summer Intern in Computational Science and Engineering Divison* Summer 2015
  - Built a cutting-edge backend using NodeJS to visualize the progression of breast cancer as a tree
  - Designed and implemented the infrastructure to handle thousands of users by utilizing web caches
  - Implemented state-of-the-art machine learning algorithms such as K-means and Competitive Hebbian Learning to project the cancer tree using patients genomic data
  - Helped in visualizing the cancer tree on the frontend using D3js
  - Authored detailed, technical documentation covering design methodologies, troubleshooting, APIs, frontend, web caches, and databases
  - Facilitated communication between backend and frontend teams
  - Automated and maintained testing of the backend APIs

## Research Projects

- **Evaluating The Interaction Between Human and Agent** Doha, Qatar  
*Robotics Lab - Carnegie Mellon University Qatar* Jan. 2014 – Aug. 2014
  - Studied and evaluated how the introduction of technological peripherals (tablets and cameras) affect the interaction between an agent (Hala, bilingual Robo-receptionist) and human
  - Ported Hala 3D detailed face to iOS and Android tablets as well as web browsers
  - Rebuilt the face shaders and textures using OpenGL ES and WebGL
  - Utilized Unity and Blender
  - Reported detailed progress periodically to supervisor

## • Enhancing Agent Gaze Utilizing CV in Uncontrolled Environments

Doha, Qatar

*Robotics Lab - Carnegie Mellon University Qatar*

*Summer 2013*

- Funded by **Qatar Student-Initiated Undergraduate Research Program** and granted **\$5,500**
- Developed approaches to enhance the gaze of an agent (Hala, bilingual Robo-receptionist) in uncontrolled environments
- Implemented state-of-the-art face detection and head-pose estimation algorithms using Microsoft Kinect Sensor
- Demonstrated leadership, planning, and research skills to formulate the research question and independently solve the problems

## Activities and Honors

**Dean's List:** Carnegie Mellon University during 2013 – 2014

**QSIURP:** Received the Qatar Student-Initiated Undergraduate Research Program grant from Carnegie Mellon University and was granted **\$5,500**

**President:** Computing Club at Carnegie Mellon University during 2013 – 2014

**Computer Science Student Ambassador:** Carnegie Mellon University during Spring 2013

**Member of Student Advisory Council:** Carnegie Mellon University during 2013 – 2014

## Skills

**Technologies:** C/C++, Python, Javascript, Java, NodeJS, MySQL, HTML, CSS

**Operating Systems:** Linux/Unix, Mac OS, Windows

**Github:** [github.com/mahmoudalishmail](https://github.com/mahmoudalishmail)

## Projects

**Reporta:** Developed with a group of four students and professionals a personal news reporter that works on Google Glass and the browser. We developed our own NLP algorithms to turn official headlines into natural sounding conversation. We also built our own context and memory system, as well as an ensemble of voice recognition, NLP and AI technologies so that you can converse with Reporta, the personal reporter, in your own words. The project had been developed during AlJazeera Media in Context Hackathon and **won two major prizes totaling \$4,000.**

**Malloc and Shell:** Developed a Unix Shell and the standard C malloc function.

**Face Recognition System:** Implemented a Facial Recognition System based on EigenFaces Algorithm from ground up for the course Fundamentals of Programming and Computer Science during first semester in freshmen year.

**Light Programming Workshop:** Designed and co-taught an 8 week fundamentals of programming workshop for Academic Bridge Program students. The workshop introduced students to basic programming skills and data structures.