

# Megan A. Ruthven

maruthven@gmail.com

[www.maruthven.com](http://www.maruthven.com)

713-201-0030

**Objective:** Full time position involving machine learning and DSP with data related to human interaction and life sciences.

**Education: Electrical and Computer Engineering, M.S., December 2015**

The University of Texas at Austin

**Advisor:** Professor Ahmed Tewfik

**Research:** Neural Prosthetics

**Overall GPA:** 3.51

**Related Courses:** Information Theory, Intro to Non-Linear Bio-Systems, Scalable Machine Learning, Dynamical Systems, Estimation Theory, Data Mining: Predictive Models, Digital Signal Processing, Principals of Neuroscience 1, Probability and Stochastic Processes

**Electrical and Computer Engineering, B.S., May 2013**

The University of Texas at Austin

Overall GPA: 3.71/4.0

Major GPA: 3.71/4.0

**Related Courses:** Embedded and Real-time System Lab, Empirical Standards in Software Engineering, Microprocessor Applications and Organization (EE 445L)

**Informatics, Study Abroad, Spring 2012, The University of Edinburgh, UK**

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**Skills:**

- Digital Signal Processing
- Machine Learning
- Programming languages: C++, MATLAB, Scala, C, Python, Java, LabVIEW
- Scalable Frameworks: OpenMP, Spark, MPI, Hadoop
- PCB modeling and imaging: Altium, PCB Artist, and Eagle

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**Work Experience:**

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| <b>5/2015-8/2015</b>    | <b>Data Science Intern &amp; KPCB Fellow: MyFitnessPal</b>   | San Francisco, CA |
|                         | <ul style="list-style-type: none"><li>• Cleaned &amp; prepared user interaction data for unsupervised learning</li><li>• Segmented users based on the above data</li></ul>   |                   |
| <b>1/2015-12/2015</b>   | <b>Teaching Assistant: Digital Signal Processing Lab</b>   | Austin, TX        |
|                         | <ul style="list-style-type: none"><li>• Taught lab sessions and guided students through the exercises</li></ul>  |                   |
| <b>5/2014-8/2014</b>    | <b>Software Engineering Intern: Google</b>   | Mountain View, CA |
|                         | <ul style="list-style-type: none"><li>• Implemented machine learning system to predict accuracy of a crowd sourced answer</li><li>• Reduced required average work per question by 58%</li><li>• Added feature on crowdsourcing website, modified through feedback and iterative design</li></ul> |                   |
| <b>9/2013-Present</b>   | <b>Graduate Research Assistant, Dr. Tewfik: Neural Prosthetics</b>   | Austin, TX        |
|                         | <ul style="list-style-type: none"><li>• Research current implementations of EEG and electrode array signal processing</li><li>• Process neural signals from electrode array to identify neural patterns that are experimentally coupled to behavior</li></ul>                                    |                   |
| <b>5/2013-8/2013</b>    | <b>Engineering Intern, Sparx Engineering</b>   | Houston, TX       |
|                         | <ul style="list-style-type: none"><li>• Analyzed, redesigned, and tested biomedical device electronics</li><li>• Researched current implementations of electrosurgical tools</li><li>• Used Google Script, and Zend Gdata API to create web based scoring system for contest</li></ul>           |                   |
| <b>8/2012 – 12/2012</b> | <b>Teaching Assistant, Dr. Barber: Software Design &amp; Implementation</b>  | Austin, TX        |
| <b>6/2012 – 8/2012</b>  | <b>Hardware Apps Intern, Texas Instruments</b>   | Stafford, TX      |
| <b>5/2011 – 8/2011</b>  | <b>Plant Engineering Intern, General Motors</b>  | Arlington, TX     |

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## Technical Projects:

- 8/14/2015-8/16/2015 Hack the Planet: MegBot – Facebook messenger bot** Mountain View, CA
- Summarizes your group chats to the 5 most frequent words, great for active chat groups
  - Circumvented the lack of Facebook Messenger API by creating a scraping bot with phantomjs
  - Open sourced it at: <https://github.com/maruthven/megbot>
- 11/8/2014-11/9/2014 DevOn Mobile Hackathon: MFacti.com** Austin, TX
- Developed a SMS and light website for quick fact lookup (high information, low byte #)
  - Created for markets with high percentage of feature phones, low percentage of smart phones
  - Try it at: <http://mfacti.com>, text questions to 512-270-7266, translations at 877-579-0063
- 9/15/2013-9/16/2013 HackTX: Relevant XKCD Search, 2<sup>nd</sup> place** Austin, TX
- Worked with a partner to create a XKCD comic search website in a 24 hour hackathon, URL: <http://relevantxkcd.appspot.com/>, 500 people participated in HackTX 2013
- 8/2012 – 5/2013 Senior Design: Automated 3D Mapping with RGBD Camera** Austin, TX
- Worked on a team to create an autonomous robot made from a Segway RMP, Microsoft Kinect, and computer using Robot Operating System (ROS) to navigate an unknown space while creating a 3D map
  - Researched technologies and implementations of SLAM, ICP, and voxel filters
  - Implemented autonomous navigation and 3D mapping in one project
- 10/2011 – 11/2011 EE 445L Project Partner, 3D RGB LED Connect Four Cube** Austin, TX
- Worked with one partner to design, build, and program a 3D RGB LED cube to play three dimensional Connect Four
  - Chose parts to use for system, designed system schematic and PCB using PCB Artist, designed RGB LED Cube multiplexing, and dashboard user interface, assembled all parts to create cube, wrote game play instructions, programmed control software
- 10/2010 – 3/2011 Robot Engineer, Salvage Vanguard Theater** Austin, TX
- Designed and created four robot actors for the play *Heddatron*
  - Coordinated robots' aesthetics with the Vanguard Theater production team, Co-lead six member (EE, CS, and ME) robot fabrication team: built robots

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## Community Involvement:

- 7/2012 – Present Board Member, MentorSearch Non-profit** Houston, TX
- Objective of Mentor Search: To benefit K-12 STEM activities by connecting mentors to school robotics groups: currently focused on the Houston community
  - My role: Identify how to create connections between schools and available mentors

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## Awards and Scholarships:

- KPCB Fellow – 2015
- 2<sup>nd</sup> Place: HackTX, 2013
- UT EE 445L Design Competition 1<sup>st</sup> place, 2011 (LED Cube)
- Austin Critics' Table: Special Citation, 2011 (*Heddatron* robots)
- B. Iden Payne Awards: Nomination for Outstanding Puppetry, 2011 (*Heddatron* robots)

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## Professional Memberships:

- Eta Kappa Nu – Psi Chapter (Spring 2011 – Present)
- IEEE (Fall 2009 – Present): Robotics and Automation Society member; Women In Engineering member