209 E Clark St, Apt 6
Champaign IL 61820

PAVANKUMAR REDDY M

(217) 693-1237
pavankumarreddy.93@gmail.com

EDUCATION

University of Illinois, Urbana-Champaign **August 2016**

Master of Science in Computer Engineering. GPA: **4/4**

- Graduate Coursework: Machine Learning, Natural Language Processing, Inference in Graphical Models, Distributed Systems, Advanced Algorithms, Pattern Recognition.

Indian Institute of Technology, Madras **July 2014**

Bachelor of Technology (Honours) in Electrical Engineering. GPA: **9.1/10**

- Minor: Operations Research.

LANGUAGES AND TECHNOLOGIES

- C, Java, Python; C++, Javascript, CudaC, Objective-C, HTML/CSS, Assembly for x86, Scala
- Eclipse, XCode, PyCharm, Matlab

PROJECTS AND PROFESSIONAL EXPERIENCE

Cognitive Computation Group, UIUC **Present**

Research Advisor: Prof. Dan Roth

- **Supervised Relation Extraction (Slot Filler Validation)**. Developed binary classifiers for each relation described in the TAC KBP SFV task[1]. In addition to improving precision of a previous rule based system, the method further identifies competing relations that cover the same entity arguments in a sentence.
- **Unsupervised Relation Extraction**. Developing an unsupervised relation discovery system with a two-stage model - relation discovery and reconstruction of arguments using factorization model.[2]

Other Projects

- **Language to Code**. Developed a system (semantic parser) to convert natural language If-This-Then-That (IFTTT) "recipes" to appropriate trigger and action code.[3]
- **Crowdsourcing Problem**. Achieved a 99.96% accuracy on binary labelling task using responses from a group of unreliable workers by designing an adaptive algorithm based on expectation maximization[4].
- **Consensus and Mutual Exclusion for Distributed Robotics System**. Implemented a distributed mutual exclusion algorithm based on Ricart-Agarwala algorithm and Multi-Paxos for distributed consensus among different robots.
- **Epileptic Seizure Prediction**. Evaluated several models for predicting the onset of Seizures in Patients with Epilepsy including SVM and random forest classifier.
- **Online Scientific Editor** (TNQ Books and Publishers, 2011). Designed and developed an online scientific editor for TNQ Books and Publishers for online editing of scientific documents forking the CKEditor project. Our editor features additional math and SVG editing capabilities, file management and file format conversion.

Graduate Teaching Assistant, UIUC **2014-2015**

- Courses: Computer Systems Engineering, Computer Systems and Programming, Embedded and Cyberphysical System Verifications.
- Conduct weekly discussion and lab sections for sophomore, junior and senior students.

Senior Thesis - High Level Synthesis and Mapping of Digital Circuits, IIT Madras **2013 - 2014**

- Designed a compiler plugin for Scala to map a hardware description (in Chisel) into structures called Assignment Decision Diagram (ADDs) to reduce syntactic variances in these descriptions.

---

[1] http://www.nist.gov/tac/2015/KBP/SFValidation/index.html, http://www.pavankumar.xyz/docs/ui-ccg-tac-overview.pdf
[2] Based on work by Ivan Titov – "Discrete-State Variational Autoencoders for Joint Discovery and Factorization of Relations"
[3] Based on work by Chris Quirk et. al. - Language to Code: Learning Semantic Parsers for If-This-Then-That Recipes.
[4] http://www.pavankumar.xyz/docs/presentation.pdf

ADDITIONAL EXPERIENCE

Hardware Engineer, Intern, Texas Instruments R & D, Bangalore **Summer 2013**

- Designed a high performance, high frequency mixer and transimpedance amplifier for baseband applications.

General Electric – Intelligent Platforms, Bangalore **Summer 2012**

- Reduced sweep time for some ubiquitous ladder logic modules for GE-FANUC PLCs after rewriting them in C by up to 80%.

HONORS AND AWARDS

- CBSE Merit Scholarship, Government of India for professional studies for an all-India rank of **83 out of 1,000,000 students** in the All India Engineering Entrance Exam.
- **Certificate of Merit, Government of India** for all-India rank of **305 out of 470,000** students in the IIT JEE.
- **Special Mention, Indian National Astronomy Olympiad**, 2009 for being in the top 1%.
- **Rank 9**, National Mathematical Talent Competition, 2009.
- Represented school in 58th International Astronautical Congress, Hyderabad, 2007.
- **City rank 1, State rank 3** in 10th National Science Olympiad (National percentile of 99.63).