

Education

- **Stanford University** California, USA
PhD. in Computer Science Aug. 2012 – Present
 - Focus Areas: Statistical Learning Theory, Machine Learning, Natural Language Processing.
- **Indian Institute of Technology, Madras** Chennai, India
BTech./MTech. in Computer Science and Engineering; **CGPA: 9.24/10** Aug. 2007 – June 2012
 - Major: **Computer Science and Engineering**; Minor: **Physics**
 - **GRE:** 1460/1600 (Quantitative: 800/800 Verbal: 660/800 Writing: 4.5/6)
 - **TOEFL:** 115/120 (Reading: 30/30 Listening: 30/30 Speaking: 27/30 Writing: 28/30)

Publications

- A. Chaganty, P. Liang, “*Estimating Latent Variable Graphical Models with Moments and Likelihoods*”. International Conference on Machine Learning (ICML) 2014.
- A. Chaganty, P. Liang, “*Spectral Experts for Estimating Mixtures of Linear Regressions*”. International Conference on Machine Learning (ICML) 2013.
- A. Chaganty, A. Lal, A. Nori, S. Rajamani, “*Combining Relational Learning with SMT Solvers using CEGAR*”. Computer Aided Verification (CAV) 2013.
- A. Chaganty, A. Nori, S. Rajamani, “*Efficiently Sampling Probabilistic Programs via Program Analysis*”. AI & Statistics (AISTATS) 2013.
- A. Chaganty, B. Ravindran, “*Learning in a Small World*”. Autonomous Agents and Multi-Agent Systems (AAMAS) 2012.

Awards

- **Roberto Padovani Scholarship (2009):** for “stellar performance” on my internship assignment at Qualcomm 2009.
- **Kishore Vaigyanik Protsahan Yojana (2006):** Fellowship awarded by the Department of Science and Technology, Govt. of India to promote interest in the basic sciences.

Research Experience

<http://arun.chagantys.org/research>

- **Learning Latent Variable Models** Stanford University
Arun Tejasvi Chaganty, Percy Liang September 2012 - present
 - Can we efficiently learn latent variable models with guarantees (as opposed to EM)?
 - Used linear regression and the method of moments to develop a statistically consistent algorithm for a mixture of linear experts model with polynomial sample and computational complexity (**ICML 2013**).
 - An algorithm to learn parameters for any discrete graphical model satisfying a ‘uniformly bottlenecked’ assumption; the family includes models with high treewidth as well as log-linear models (**ICML 2014**).
- **Relation Extraction for Knowledge Base Population** Stanford University
Arun Tejasvi Chaganty, Christopher Manning January 2013 - present
 - Using logical inference in a distantly supervised setting to populate relations in a knowledge base.
 - Our entry was among the *top 5* at the TAC-KBP 2013 General Slot Filling competition.
 - Using collective inference over the graph of extracted relations to improve precision and recall.

- **Program Analysis meets Probabilistic Programs** Microsoft Research India
 Arun Tejasvi Chaganty, Aditya Nori, Sriram Rajamani May 2011 - July 2012
 - Used dynamic analysis and concolic execution to efficiently sample from probabilistic programs by avoiding invalid states in both an importance sampling and Metropolis-Hastings setting (**AISTATS 2013**).
 - Applied Counter-Example Guided Abstraction Refinement, and generalization (from program analysis) to the Markov Logic Network framework, with significant performance improvements over prior art (**CAV 2013**).
 - Filed for patent: *“Probabilistic Model Approximation for Statistical Relational Learning”*.
- **Inter-task Learning with Spatio-Temporal Abstractions** IIT Madras
 Arun Tejasvi Chaganty, Balaraman Ravindran March 2011 – May 2012
 - We address the problem of learning mappings between (continuous) state spaces and learning effective compositions of primitive actions efficiently in the reinforcement learning framework (**Master’s Thesis**).
 - Proposed a method of generating options based on Kleinberg’s small world network model. Agents trained with these options learned to perform tasks significantly faster than existing techniques (**AAMAS 2012**).
- **NetSyn: Network Management with SMT Solvers** Microsoft Research India
 Arun Tejasvi Chaganty, Sriram Rajamani, Ranjita Bhagwani May 2010 – July 2010
 - Developed a framework to declaratively construct low-level router configurations for an enterprise network from an arbitrary high-level policy using Satisfiability Modulo Theories (SMT) solvers. The framework scaled to networks of the order of a thousand nodes, including several real networks.

Teaching and Leadership Experience

- **Teaching Assistant for CS221 (Artificial Intelligence)** California, USA
 Stanford University Sept 2013 – Dec 2013
- **Teaching Assistant** Chennai, India
 IIT Madras Aug 2011 – May 2012
 - **CS2110/CS2810 (Computer Programming)** Designed course syllabus and assignments, and taught classes. Implemented several changes to help scale with the large class size (62 students).
 - **CS6730 (Probabilistic Reasoning in AI)** Designed assignments, gave recitations.
 - **CS6380 (Artificial Intelligence)** Handled an assignment in which students had to write an AI bot for Othello and another game.
- **Head of Web-Operations** Chennai, India
 Shaastra 2008, 2009
 - Co-led a team of 9 students in creating web-applications and designing the website for Shaastra 2009 which had over 12 million hits. Led a 3-member team in designing the event registration portal for the same in 2008.
- **Speaker at Open Source Workshops**
 - Co-organised and conducted Free and Open Source Software Workshops on GNOME at Shaastra 2008, 2009, and on Python at Exebit 2010.

Development Experience

<http://arun.chagantys.org/projects>

- **Dynamic Firewalls for Micro-budgeting Connectivity** San Diego, CA, USA
 Qualcomm Corporate R&D May 2009 – July 2009
 - Compared the performance of `iptables` on Linux, and Windows Filtering Platform on Windows, and wrote a WFP driver to implement a dynamic firewall on Windows. Was awarded the **Roberto Padovani Scholarship** from Qualcomm in 2009 for “stellar performance” on my internship assignment.
- **Integrating Vim with the Anjuta IDE** Hyderabad, India
 Google Summer of Code '08 May 2008 – Aug 2008
 - Integrating the popular Vim text editor into Anjuta, an open-source IDE in collaboration with the GNOME Foundation, under the Google Summer of Code Program.

More Research Experience

<http://arun.chagantys.org/research>

- **Analysing the Perez-Malta-Couthino model in population dynamics** IIT Madras
Arun Tejasvi Chaganty, Ramya Korlakai Vinayak, Gaurav Raina Jan 2011 – Oct 2011
 - Analysed the stability of fixed points and limit cycles of a population dynamics system described by a quadratic delay differential equation using the center manifold theorem and Hopf bifurcation theory.
- **Collapsed Variational Bayes for the Log-Normal LDA** IIT Madras
Arun Tejasvi Chaganty, Kirtika Ruchandani, Balaraman Ravindran Aug 2010 – Dec 2010
 - Incorporated topic correlations in the Latent Dirichlet Allocation model by adding a Log-normal prior on the topic distributions. Implemented the same in `Octave`, using Collapsed Variational Bayes updates.
- **Enhancing the Statistical Model of Holmes** Microsoft Research India
Arun Tejasvi Chaganty, Kapil Vasawani May 2010 – July 2010
 - Worked on *finding likely root causes of bugs in programs* using statistical properties collected on a set of test cases for the program.

More Development Experience

<http://arun.chagantys.org/projects>

- **Webbed Feet: Judge for AI Competitions** Chennai, India
IIT Madras Aug 2010 – Nov 2010
 - Built an online judge for AI competitions. This platform has been used for CS6380: Artificial Intelligence at IIT Madras, and at IIT Mandi, as well as at Shaastra and Exebit ¹.
- **Interpreter for the Clay Programming Language** Chennai, India
IIT Madras Jan 2010 – May 2010
 - Built a basic interpreter using the LLVM compiler infrastructure for the generic programming language, Clay, developed by Tachyon Technologies, Chennai.

More Awards

- **Qualcomm Innovators Challenge (2009):** Placed 1st for the product design of an information management tool.
- **Yahoo! HackU (2010):** Placed 2nd for a prototype of a contextual news retrieval tool.

Miscellaneous

- **Languages:** C/C++, Java, Scala, C#, Python, F#, L^AT_EX, Bash, HTML, CSS, PHP, matlab
- **Software:** `lex`, `yacc`, GTK+, wxWidgets, Django, Win32, Windows Device Framework (WDF), WPF, Visual Studio SDK, Z3, Infer.NET, Stanford JavaNLP

¹Shaastra and Exebit are IIT Madras' student-run technical festivals