AMITA KAMATH

MSCS Student · Natural Language Processing · Machine Learning
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EDUCATION

Stanford University *Sept 2017 — June 2020 [Expected]*
M.S. in Computer Science (Specialization: Artificial Intelligence) GPA: 3.99
Research Interests: Deep Learning for Natural Language Processing, with a focus on robustness.
Relevant Coursework: CS221 (Artificial Intelligence), CS229 (Machine Learning), CS224n (NLP with Deep Learning), CS224u (NLU), CS236 (Deep Generative Models), CS276 (Info. Retrieval, Web Search)

National Institute of Technology Karnataka, Surathkal, India *2013 — 2017*
B.Tech. in Computer Science and Engineering GPA: 9.54
Gold medalist (Rank 1/106)
Research Interests: Systems security, Network security

National Public School Rajajinagar, Bangalore *2011 — 2013*
CBSE syllabus (Rank 5/100) Percentage: 96.6
Subjects: Physics, Chemistry, Math, Computer Science, English

Vidya Shilp Academy, Bangalore *2003 — 2011*
ICSE syllabus, *Gold medalist* (Rank 1/75) Percentage: 96.3

RESEARCH PROJECTS

Selective Question Answering under Domain Shift Summer 2019 — Present
Amita Kamath, Robin Jia, Percy Liang *Stanford University*

- Proposed a novel setting encapsulating the practical necessity of knowing when to abstain on test data that differs from the training data.
- Showed that QA models are overconfident on out-of-domain (OOD) examples relative to in-domain examples, leading to poor performance in mixed settings.
- Explored multiple selective prediction methods, showing that OOD data from a different distribution can improve accuracy significantly when used to train a calibrator [**ACL 2020**].

Semi-automated Generation of Diverse Unanswerable Questions Fall 2018 — Spring 2019
Amita Kamath, Robin Jia, Percy Liang *Stanford University*

- Determined that existing methods to generate impossible questions were costly and/or lacked diversity.
- Proposed a new "perturb, judge, train" pipeline to generate diverse unanswerable questions with a small number of labeled examples [**will be on arXiv**].

Dynamic Invariant Detection for Cyberphysical Systems Summer 2016 — Winter 2016
Maryam Raiyat, Amita Kamath, Karthik Pattabiraman *University of British Columbia*

- Mined dynamic system properties using Association Rule Mining and techniques from Probabilistic Graphical Models.
- Co-created an Intrusion Detection System for cyberphysical systems based on these invariants, reducing false positives and false negatives dramatically, by 31% and 93% respectively [**FSE 2017**].

TEACHING EXPERIENCE

- Head Course Assistant for CS221 (Artificial Intelligence), Summer 2019, with instructor Robin Jia. Managed a team of 6 CAs and 100+ students, taught sections and mentored several students.
- Course Assistant for CS224n (Natural Language Processing with Deep Learning), Winter 2019, with Adjunct Professor Richard Socher. Worked with a team of 18 CAs for 400+ students to develop new assignments and re-implement existing code in PyTorch. Mentored 10+ student course project teams. Currently a CA for CS224n, Winter 2020 with Professor Chris Manning.
- Course Assistant for CS221 (Artificial Intelligence), Autumn 2018, with Professor Percy Liang. Worked with a team of 15 CAs for 400+ students to refine and grade course assignments. Mentored 10+ student teams for the course project.

PUBLICATIONS

- Amita Kamath, Robin Jia, Percy Liang. **Selective Question Answering under Domain Shift**, *Association of Computational Linguistics (ACL)*, 2020.
- [Undergraduate] Maryam Aliabadi, Amita Kamath, Julien Gascon-Samson, Karthik Pattabiraman. **ARTINALI: Dynamic Invariant Detection for Cyber-Physical System Security**, *ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE)*, 2017.
- [Undergraduate] Amita Kamath, Chirag Jamadagni, Kevin Mathew, Abhijith Anilkumar, Mohit Tahiliani. **GCPiN: Group Caching for Privacy in Named Data Networking**, *IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)*, 2017.
- [Undergraduate] Amita Kamath, Chirag Jamadagni, K Chandrasekaran. **VirtTorrent: BitTorrent for Inter-VM File Distribution**, *International Conference on IoT and Cloud Computing (ICC)*, 2016.
- [Undergraduate] Dhruv Chand, Sunil Nayak, K Bhat, Shivani Parikh, Yuvraj Singh, Amita Kamath. **A mobile application for Women's Safety: WoSApp**, *IEEE Region 10 Conference (TENCON)*, 2015.

DEPARTMENT SERVICE

- Student Member of the Stanford MSCS Admissions Committee, 2019. Reviewed student applications and discussed with faculty on the committee to select the incoming MS students.
- Organizer of the weekly NLP Reading Group, Fall 2019, attended by graduate students and faculty of the Stanford NLP Group.

AWARDS

- Top 3 Projects Award, CS224n (NLP with Deep Learning) 2018. The project studied adversarial attacks on Question Answering systems and devised methods to improve robustness against the same. Awarded 2nd Prize out of 145+ projects.
- Stanford-CISPA Research Fellowship, 2018. To perform work on reinforcement learning for web security.
- Mitacs Globalink Research Fellowship, 2016. This fellowship is awarded by the Government of Canada to the top 5% of 10,000+ students from developing countries based on academic performance and research potential, to perform research in Canadian universities (matched to University of British Columbia).
- Indian Academies of Science Summer Research Fellowship, 2015. This fellowship is awarded to students with outstanding academic performance, to perform research in top research universities in India (matched to Indian Institute of Science).

- Highest SGPA and CGPA awards, 2015-17. Awarded by the Department of Computer Science, NITK to the student with highest semester/cumulative GPA.
- Selected as one of 10 student volunteers from across the country for COMSNETS 2017, the top networks conference in India.
- INSPIRE, SPDC, DASA scholarships, 2010-2017. Awarded by the Government of India for outstanding academic performance.
- MaRRS Spelling Bee: Second place in national and international levels, 2012. Top 10 places in national and international levels, 2009-2010. Awarded scholarships for each.

SKILLS

Software	Python, PyTorch, Tensorflow, C++ (proficient) Javascript, Java, MATLAB, HTML (basic)
Languages	English, Konkani (native) Hindi, Kannada, French (basic)
Extra-curricular	Social Dancing (performed in Stanford's The Nutcracker, 2019) Art (Creative Coordinator of Artists' Forum, NITK, 2017) Handicrafts (Guinness World Record [group] for largest crocheted blanket, 2016) Creative Writing (published two short stories through Scholastic)