

Tarun Gupta

+65 8376 4106 | tarun1995gupta@gmail.com



INTERESTS

Reinforcement Learning, Meta Learning, Transfer Learning, Multi-Agent Systems, Optimization Methods, Probabilistic Graphical Models, Sequential Decision-Making, Deep Learning.

EDUCATION

MS by RESEARCH in COMPUTER SCIENCE | IIIT HYDERABAD | Hyderabad, India 2017 – 2018

- Specialization: Machine Learning, Reinforcement Learning, Multi-Agent Systems
- Published and presented full oral papers in A* conferences in AI : AAAI-18, AAAI-19
- Google India, Microsoft Research India and AAAI Student Scholarship travel grant to attend and present paper at AAAI 2018 in New Orleans, USA.
- Advisor: Dr. Praveen Paruchuri (IIIT Hyderabad); Dr. Akshat Kumar (SMU)

B. TECH in COMPUTER SCIENCE | IIIT HYDERABAD | Hyderabad, India 2014 – 2017

- Gold Medalist for the highest cumulative GPA: 9.32 / 10.0 in the graduating batch.
- Awarded Dean's Academic Merit list that is awarded to top 5% students each semester.

PUBLICATIONS & AWARDS

Planning and Learning For Decentralized MDPs With Event Driven Rewards

Tarun Gupta, Akshat Kumar, and Praveen Paruchuri. AAAI. 2018, Oral.

- [\[Link to Published Version\]](#) [\[Link to Detailed Version\]](#)
- 15-minute Oral Presentation. Oral Acceptance Rate: $[417/3800 = 10.9\%]$

Successor Features Based Multi-Agent RL for Event-Based Decentralized MDPs

Tarun Gupta, Akshat Kumar, and Praveen Paruchuri. AAAI. 2019

- To appear in AAAI-2019. Acceptance Rate: $[1150/7700 = 16.2\%]$ [\[Link to Detailed Version\]](#)

DEAN'S GOLD MEDAL (HIGHEST CUMULATIVE GPA) | IIIT HYDERABAD 2018

DEAN'S LIST - 1 (TOP 5% IN BATCH) | IIIT HYDERABAD 2015-2017

EXPERIENCE

RESEARCH ENGINEER | Singapore Management University | Singapore JUL'18 – Present

- Developing state of the art Reinforcement Learning (RL) algorithms to achieve scalable and generic learning across different environments in multi-agent systems.
- This work was accepted at AAAI 2019 (*16.2% acceptance rate*).
- Technologies: Python, TensorFlow, AMPL; Approximate Lines of Code: 40K

RESEARCH ASSISTANT | IIIT HYDERABAD | Hyderabad, India AUG'17 – JUN'18

- Developed and implemented novel scalable algorithms for planning and learning in multi-agent systems. This work was accepted at AAAI 2018 for oral presentation (*10.9% acceptance rate*).
- Technologies: Java (Multi-Thread Parallel Processing), Python, TensorFlow, AMPL, Gradle (Project Management);

OPEN SOURCE DEVELOPER | GOOGLE SUMMER OF CODE MAY'15 – AUG'15; MAY'17 – AUG'17

- [\[2017\]](#) Implemented client side experimental features for Swift IM (an open-source XMPP client for instant messaging (IM) and multi-user chat) such as querying MIX server for hosted chat rooms, joining/leaving chat rooms, querying for publish-subscribe nodes, syncing different clients of the same user, presence updates of users and sending/receiving messages to other participants in the chat room.
- [\[2015\]](#) Designed and Implemented parts such as the elements, their parsers and serializers of XMPP protocol adding features for Jabber ID, VCards, Internationalized Domain Name, Multi-User Chat, Client Discovery.
- Worked with people from 4 different countries at the same time resolving development and production issues. Tested developmental code thoroughly with unit and integration testing. Improved the test coverage of the C++ XMPP library (Swiften).
- Created and maintained project schedule and technical documentation.
- Technologies: C++, Java (OOPS), Google Test, Ant (Project Management); Approximate Lines of Code: 80K; Link to Repositories: [\[Swift\]](#) [\[Stroke\]](#)

TEACHING ASSISTANT | IIIT HYDERABAD | Hyderabad, India

AUG'15 – JUN'18

- Served as a Teaching Assistant (TA) for multiple courses at IIIT including Multi-Agent Systems, Optimization Methods, Statistical Methods in Artificial Intelligence, Artificial Intelligence, Structured System Analysis and Design.

INDEPENDENT PROJECTS

2014 – 2018

*Worked on several independent projects throughout the academic journey at IIIT Hyderabad. Some of the *selected* ones are listed.*

- [Spam Mail Filtering](#): Feature Extraction from emails, generating vocabulary through lemmatization and stemming and converting them to feature vectors and classifying them as spam or non-spam. Technologies: Python, Scikit, TensorFlow
- [Human Activity Recognition](#): Classify human actions into six different categories from smartphone sensor data. using pre-processed data from a smartphone accelerometer and Support Vector Machine (SVM) to classify the actions. Then trained a deep convolutional neural network for directly extracting features from images with long-short-term memory cells, which produced more accurate results. Technologies: Python, Scikit, TensorFlow, Pandas, Theano
- [Cloud Orchestration Layer](#): Built a framework similar to Amazon EC2 console that can coordinate the provisioning of compute and storage resources by negotiating with a set of hypervisors running across physical servers in the datacenter. Successfully linked multiple physical machines and provide storage and compute resources on demand, based on different flavors available to users. Technologies: Python, Flask, LibVirt, Ceph, MongoDB

SKILLS

Programming	C, C++, Java, Python, MATLAB
Machine Learning	Python, TensorFlow, Keras, Theano, Scikit, PyTorch, AMPL, Pandas
Data Stores	MySQL, MongoDB, Cassandra
Others	Ubuntu, AWS APIs, Android, LaTeX, REST APIs, Web2py, Flask