Rishav **Chourasia**

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Bio. I am a 1st-year Ph.D. Student at School of Computing, National University of Singapore and am currently exploring different research groups to join. In my free time, I enjoy playing board games and contributing to open source projects like *Optuna* or *Chainer*.

Research interests. As part of my Ph.D. research work, I am interested in studying benefits of knowledge sharing among group of learners (bandits, RL agents or basic function approximators) and finding ways to leverage it for speeding up learning. My latest work explores Multi-winner Voting Rules in context of an ensemble of Q-learners for improving characteristics such as exploration, stability, etc. Non exhaustive range of topics I am interested in : **Social Choice Theory, Multi-agent Learning, Reinforcement Learning, Optimization algorithms**.

🎓 Education

Aug 2019 – Jun 2023 (expected)	**Ph.D. Candidate** in Computer Science, *National University of Singapore* (NUS), Singapore School of Computing *Advisor : (undecided)*
July 2014 –June 2018	**Bachelor of Technology**, *Indian Institute of Technology* (IIT), Guwahati Major in Computer Science & Engineering **GPA** : 9.26/10.0

📖 Publications

> **Rishav Chourasia**, Adish Singla, "Unifying Ensemble methods for Q-learning via Social Choice Theory," preprint.
> **Rishav Chourasia**, "Optimal Swarm RL : An Improved Deep Exploration strategy," preprint.
> **Rishav Chourasia**, Vaibhav Saxena, Nikhil Yadala, and Frank Chung-Hoon Rhee, "Visualization of Two-dimensional Interval Type-2 Fuzzy Membership Functions using General Type-2 Fuzzy Membership Functions," *International Fuzzy Systems Association* (**IFSA**), 2017,
> doi : 10.1109/IFSA-SCIS.2017.8023274.
> Vaibhav Saxena, Nikhil Yadala, **Rishav Chourasia**, Frank Chung-Hoon Rhee, "Type Reduction Techniques for Two-dimensional Interval Type-2 Fuzzy sets," *IEEE International Conference on Fuzzy Systems* (**FUZZ-IEEE**), 2017,
> doi : 10.1109/FUZZ-IEEE.2017.8015724.

≣ Skills

Programming Skills :	**Python**, C/C++, Matlab, LaTeX, Bash, Lua, Java, Git. *experienced in* software design patterns. *experienced in* contributing to open source projects.
Machine Learning :	**Reinforcement Learning**, Deep Learning. *familiar with* most statistical machine learning/signal processing algorithms/techniques. *familiar with* (convex) optimization theory, matrix theory.
Deep Learning Frameworks :	**Chainer**, **PyTorch**, **Tensorflow**, Torch7, MXNet, Scikit-learn.
Simulation Softwares :	Gazebo, V-REP, MuJoCo, OpenAI Gym.

</> Projects & Experiences

Aug 2019 May 2019	**Google Summer of Code student developer, Chainer Compiler, C++/Python** > Contributed to an experimental Compiler that converts *Chainer* models to a standard Intermediate Representation called *Open Neural Network Exchange* (ONNX). > Added support for handling several challenging Python syntax such as break, continue, return, with and lambda as well as data-types like dictionary. > Improved compiler to handle fairly complicated models such as Resnet50 and LSTMs. > ⌗ : Chainer-Compiler 〔Chainer ML framework〕〔Python Compiler〕〔Open Neural Network Exchange〕

Jun 2019 Apr 2019	**Data Scientist Internship, Cure.Fit, Bangalore, India** › Worked on demand prediction for assisting Eat.Fit kitchens' inventory procurement. › Developed an end to end tool for generating unbiased predictions from raw inventory and sale data. Demand Prediction • Machine Learning
Feb 2019 Sep 2018	**Research Internship, Max Planck Institute for Software Systems, Saarbrücken, Germany** › Under supervision of Dr. Adish Singla, head of Machine Teaching group. › Studied properties of committee voting rules and their manifestation when applied to ensemble based Reinforcement learning. Social Choice Theory • Reinforcement Learning • Multi-winner Voting rules
Sep 2018 Jul 2018	**Software Development Engineer, Amazon India, Bangalore, India** › Carried out software development as part of the Transaction Risk Management S-Team. › Helped maintain and develop FORTRESS, an amazon wide fraud detection service. Fraud Detection • Java service • AWS
Jul 2017 May 2017	**Software Development Internship, Amazon India, Bangalore, India** › Developed platform for tracking and modifying configuration changes in fraud check pipelines. Fraud Detection • Software Development
May 2017 Jul 2016	**Project Manager, Robotics Club, IIT Guwahati** › Guided several student projects and teams participating in robotics competitions. › The club won IIT Guwahati best club award that year along with several other competitions. Robotics • Control Systems
Jul 2016 May 2016	**Research Internship, Hanyang University, ERICA, South Korea** › Under supervision of Dr. Frank Rhee, head of Computational Vision and Fuzzy Systems lab. › Worked on efficient type-reduction techniques for higher order multidimensional fuzzy sets. Matlab • Fuzzy Logic

⚖ Honors & Awards

2018	Offered a research fellowship for three months at Max Planck Institute for Software Systems.
Fall 2016	Led the winning team of Robothon Kolkata organized under RoboFest by IIIT Hyderabad.
Fall 2016	Secured 3rd position in the image processing event of Kriti 2016, Inter Hostel Cup, IIT Guwahati.
Spring 2016	Was selected for Summer Research Fellowship Program by Indian Academy of Sciences.
Spring 2016	Secured 2nd position in IoT hackathon by Techniche, at IIT Guwahati.
Spring 2015	Department topper (GPA-9.83/10). Awarded branch change to Computer Science Department (only 8/660 students)
2014	Got AIR-3890 in JEE (advanced) 2014 and AIR-4126 in JEE (mains) 2014 (top 0.3% among 1.4 million candidates).
2012	School topper among 300+ students in Secondary examinations, achieved district rank 5.

♀ Interests

Games :	Board games–Catan, Ticket to Ride, Takenoko.
Productive :	Blogging, FOSS contributions.
Misc :	Traveling, Cycling.

(last update : 26 July 2019)