



Rishav Chourasia

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B.Tech - Computer Science and Engineering

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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech	Indian Institute of Technology, Guwahati	9.26 (Current)	2014 - Present
Senior secondary	CBSE board	91.6%	2014
Secondary	ICSE board	96.2%	2012

Experience

- Research Internship at Hanyang University, South Korea** *May 2016 - July 2016*
Prof. Frank Chung-Hoon Rhee
Analysed various derivatives of uncertainty modeling mathematical devices called Fuzzy Sets and researched efficient type reduction techniques for inter-conversion of different Fuzzy Set types. The research helped in identifying and subsequently fixing a set property violation in IT2 FCM clustering algorithm.
- Software Development Internship at Amazon, India.** *May 2017 - July 2017*
Transaction Risk and Management Team, ADC BLR-12
Developed a platform for managing service configurations for the fraud detection service used extensively for digital and physical orders in Amazon.

Publications

- Chourasia, R.,** Saxena, V., Yadala, N., Rhee, F. C.-H., Visualization of Two-dimensional Interval Type-2 Fuzzy Membership Functions using General Type-2 Fuzzy Membership Functions
Prof. Frank Chung-Hoon Rhee *IFSA-SCIS 2017*
- Saxena, V., Yadala, N., **Chourasia, R.,** Rhee, F. C.-H., Type Reduction Techniques for Two-dimensional Interval Type-2 Fuzzy Sets.
Prof. Frank Chung-Hoon Rhee *FUZZ-IEEE 2017*

Projects

- Swarm DQN: An improved deep exploration strategy** *June 2017 - Current*
Prof. Rashmi Dutta Baruah
My bachelor thesis on reinforcement learning. A modification of Bootstrapped DQN policy update strategy that improves worst-case regret bound via enhancing communication between bootstrap heads.
- Extending Karnik-Mendel Algorithm for multidimensional Fuzzy type-reduction** *Ongoing*
Prof. Frank Chung-Hoon Rhee
Karnik Mendel(KM) algorithm is a famous type-reduction technique to transform Type-2 Fuzzy sets into Type-1 Fuzzy sets, reducing uncertainty. KM algorithm suffers from the shortcoming that it can be used only on one-dimensional Fuzzy sets. The project involves extending KM efficiently for higher dimensions.
- Smart Line-following Autonomous Efficient Robot (S.L.A.E.R)** *Mar 2016 - Jan 2017*
Robotics Club IIT Guwahati
An autonomous bot capable of learning a map of lines by traversal and formulating a virtual graph to navigate using shortest path, while detecting and avoiding tagged objects. The project **won the Robothon Kolkata**, was demonstrated at **Robofest, IIIT Hyderabad** and at **Techexpo IIT Guwahati**.

- **Humanoid bot depicting dynamic walking gait** *July 2016 - Current*
Robotics Club IIT Guwahati
Using Computer simulations in MuJoCo, a virtual model of the bipedal bot was taught walking using DDPG. This project was demonstrated at **Techexpo, IIT Guwahati**.
 - **Single and multi-agent RL implementations** *June 2017 - Current*
Implemented RL algorithms such as Q-Learning, SARSA, DQN and its variants like DDQN, Bootstrapped DQN, Dueling DQN, Recurrent DQN for several environments like Atari, Super Mario, OpenAI benchmarks, Pommerman and MuJoCo; some as part of open-sourced contributions while other for competitions, projects and understanding.
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Technical skills

- **Programming languages:** C, C++, Python, Java, Bash, Lua, Matlab.
 - **Web frameworks:** Django, Flask, Jekyll.
 - **Database management :** MySQL, Neo4j, MongoDB, Sqlite3.
 - **Miscellaneous:** Git, OpenCV, OpenAI gym, TensorFlow, Torch, PyTorch.
 - **Robotics:** ROS, V-rep, Gazebo, Arduino.
 - **Operating system:** Windows, Debian, CentOS, macOS
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Positions of Responsibility

- **Manager**, Robotics Club, IIT Guwahati *Jan 2016 - April 2017*
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Achievements

- **Topped Department of Chemical Engineering** in the first year (CPI- 9.83) and was offered a change to Computer Science Department.
 - Was the leader of the **winning team of Robothon**, Kolkata, organized **under Robofest by IIIT Hyderabad** in top 5 cities of Kolkata, Delhi NCR, Bombay, Hyderabad, and Bengaluru.
 - Was the leader of the team that secured **2nd position in IoT hackathon** organized by **Bolt IoT in collaboration with Techniche**, at IIT Guwahati.
 - Secured **3rd position in the image processing competition** held under **Kriti 2016, Inter Hostel Management Cup**, IIT Guwahati.
 - Was selected for Indian Academy of Science's **Summer Research Fellowship Programme, 2016**.
 - Got **AIR-3890** in JEE(advanced)2014 and **AIR-4126** in JEE(mains) 2014 (**top 0.3% among 1.4 million candidates**)
 - Was the **school topper, among 300 students** in class 10 ICSE examinations, and achieved a **district rank of 5**.
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Extracurriculars

- **Conferences:** Gave oral presentation at IFSA-SCIS 2017 conference held in Japan.
 - **Club Workshop:** Conducted multiple workshops on image processing, machine learning and basic robotics for first-year undergrad students.
 - **Mentor:** Mentor for sophomore and junior year Robotics club members.
 - **Blogging:** Active Blogger on technical musings.
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Key courses taken

- Artificial Intelligence.
- Data structures and algorithms.
- Probability Theory and Random Processes.
- Economics and algorithmic game theory.
- Networks and Communication.
- Optimization Theory.
- Software Engineering.
- Information Retrieval.