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 modelling 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

- **Improved Deep Exploration in DQN using swarm intelligence** *June 2017 - Current*
  Prof. Rashmi Dutta Baruah
  My bachelor thesis work to modify Deep Q-Learning Algorithm so that it utilizes Particle Swarm Optimization to enable fast learning via deep explorations. This novel approach when was used for Q-Learning yielded notable results and the thesis work involves using same principle to enhance DQN.
- **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 V-Rep and OpenAI's environments, a virtual model of the bipedal bot was taught walking using DQN. The project aims to transfer the learned gait onto the real world bot using imitation learning techniques. This project was demonstrated at **Techexpo IIT Guwahati**.
- **Compiler for C like language** *Aug 2015 - Sep 2015*
  Using Lex and Bison, developed a compiler to compile a C like language containing a subset of functionalities. The lexical parser was created using Lex, and the parsed tokens were semantically analysed and converted into bytecode using the semantic analyzer and code generator made using Bison.

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.
- **Robotics:** ROS, V-rep, Gazebo, Arduino.
- **Operating system :** Windows, Debian, CentOS, macOS

Positions of Responsibility

- **Manager,** Robotics Club, IIT Guwhati *Jan 2016 - April 2017*

Achievements

- **Topped Department of Chemical Engineering** in 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.
- 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**.

Extracurriculars

- **Conferences:** Attended IFSA-SCIS 2017 conference held in Japan.
- **Image Processing workshop:** Conducted a workshop on image processing on behalf or Robotics Club, IIT Guwahati.
- **Mentor:** Mentor for sophomore and junior year Robotics club members.
- **Blogging :** Active Blogger.

Key courses taken

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