Rajat Kumar Jenamani

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Website | Github | LinkedIn | Scholar

Research Interests

Artificial Intelligence & Robotics: Search Based Planning, Planning with Learning from Experience, Applications of Planning to Robotic Systems, Multi Agent Pathfinding, Manipulation, Deep Learning

Education

IIT Kharagpur | Bachelor of Technology in Computer Science **2017 - 2021**
GPA **9.66/10.0** (Department Rank 3) | Advisor: Prof. Partha Pratim Chakrabarti
1 out of 3 students selected across my institute for Tower Research Capital India Merit Scholarship 2020.

Experiences

Carnegie Mellon University - Research Intern, Search Based Planning Lab **May 20 - Current**
Topic: Stacking & Manipulation of Household Objects *Advisor*: Prof. Maxim Likhachev
Developed a novel algorithm that lazily uses physics based simulations to stack irregular household objects and benchmarked against other state-of-the-art algorithms on the YCB Object Dataset.

Microsoft - Software Engineering Intern **May 20 - July 20**
Topic: Enhancing Actionable Messages On-Boarding Process *Team*: Office 365 Ecosystem Team (India)
Improved the on-boarding experience of global partners for Actionable Messages by reducing the manual touch-points involved. Automation led to better resource utilisation and operational excellence.

University of Washington - Research Intern, Personal Robotics Lab **May 19 - July 19**
Topic: Multi Agent Motion Planning for Robotic Arms *Advisor*: Prof. Siddhartha Srinivasa
Implemented various multi agent motion planning algorithms and tested on the arms of the robot HERB, thus enabling it to execute tasks using both arms simultaneously.

Kharagpur RoboSoccer Students' Group - AI Team Member **March 18 - Current**
Objective: To build and study cooperative multi-agent systems in dynamic adversarial environments.
Worked on motion planning algorithms and finite state machine (FSM) architecture for RoboCup SSL. Our team was among the top 25 teams in the world that qualified for SSL RoboCup 2019, a 6 vs 6 robot soccer competition.

The Cornell, Maryland, Max Planck Pre-doctoral Research School 2020 **August 2020**
Selected to attend a week long research school with professors doing state-of-the-art research in computer science.

Publications

Robotic Motion Planning using Learned Critical Sources and Local Sampling
by Rajat Kumar Jenamani, Rahul Kumar, Parth Mall and Kushal Kedia
In *IEEE International Conference on Robotics and Automation*, ICRA 2020 workshop - MLPC [pdf] [code]

Deep Learning rooted Potential Piloted RRT* for expeditious Path Planning
by K Snehal Reddy, Manjunath Bhat, Shamin Aggarwal, Rajat Kumar Jenamani, Jayanta Mukhopadhyay
In *International Conference on Automation, Control and Robotics Engineering*, CACRE 2019 [pdf]

Awards & Achievements

- Awarded certificate of 'Student Par Excellence' by IIT Kharagpur for exemplary academic performance.
- Ranked 50 in ICPC 2020 Asia Amritapuri Regionals. Ranked 66 among 4401 teams in the nationwide prelims.
- Awarded the GKF International Internship Scholarship 2020 by the IIT Kharagpur Foundation of USA.
- In **top 0.07%** in JEE Mains and **top 1.5%** in JEE Advanced (nationwide exams for admission in IITs).
- Awarded the KVPY Scholarship for scientific research by the Government of India. In **top 0.6%** of applicants.

Technical Skills

Programming Languages	C | C# | C++ | Python | Java
Libraries/Frameworks	ROS | Boost | OpenCV | Tensorflow | Open Motion Planning Library | PyBullet

Positions of Responsibility

Code Club, IIT Kharagpur Secretary | **Jan 19 - Current**
Organized up.AI 2018, a one of a kind flagship event solely dedicated to AI for Social Good.

Technology Robotix Society, IIT Kharagpur Member | **Aug 17 - Mar 18**
Organized Robotix 2018, one of India's largest robotics events. Organized intra-institute workshops on robotics.