Rohith Reddy Gangam

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Education

University of California, Irvine — Irvine, United States
M.S. & Ph.D. in Computer Science; GPA: 4.00/4.00; ***Dean's Award*** — *Sep. 2020 – Present*

Indian Institute Of Technology Bombay — Mumbai, India
B. Tech. in Computer Science; GPA: 8.09/10.00; ***Merit-cum-Means Scholarship*** — *Jul. 2014 – May. 2018*

Research Interests and Skills

Algorithms and ML: Fair and Robust Algorithms, Algorithmic Game Theory, Multi-Agent Systems
Mathematics: Linear Programming and Optimization, Probability, Calculus
Coding Languages: *Primary*: C/C++, Python; *Secondary*: Java, SQL, C#, Hadoop, Tensorflow

Scholastic Achievements

- Among **top 45** students in India in **Indian National Astronomy Olympiad**. 2012, '13 and '14
- Among **top 35** in India in **Indian National Junior Science Olympiad** 2012
- Secured **All India Rank 16**, and was awarded the Kishore Vaigyanik Protsahan Yojana Fellowship by the **Department of Science and Technology**, Government of India 2013
- Secured **All India Rank 44** in IIT-JEE from an initial pool of 1.3M candidates 2014

Research and Work Experience

University of California, Irvine — Irvine, California
Graduate Student Researcher, Algorithms and Theory of Computation Lab — *Sep. 2020 – Present*

- **Robust Algorithms and Lattice Theory:** Developed robust algorithms to identify common stable and popular matchings across instances by analyzing stable matching lattices under varying preferences for efficient computation. **PDF 1, 2 & 3**
- **Fair Division and Optimization:** Developed algorithms for equitable and stable profit sharing in graph-based cooperative games by utilizing optimization techniques from linear programming and combinatorial optimization. **PDF 4**
- **Result:** Enhanced resident-hospital matching algorithms; developed guarantees for worst-case profits and costs in goods transportation and network connection games, ensuring fairness and stability.

International Institute of Information Technology, Hyderabad — Hyderabad, India
Research Assistant: Blockchain, Machine Learning, and Mechanism Design, Machine Learning Lab — *Jun. 2019 – May. 2020*

- **Civic Crowdfunding:** Modeled crowdfunding as a game to study equilibrium contributions of budget-constrained agents.
- **RL-based simulator:** Built reinforcement learning-simulator to learn equilibrium contributions for multi-project settings.
- **Blockchain Mechanisms:** Researched mining reward mechanisms to prevent mining pool centralization.

Goldman Sachs Pvt. Ltd. — Bengaluru, India
Analyst: Surveillance Analytics Group — *Jun. 2018 – Jan. 2019*

- **Big Data ML Model:** Developed a regression-based anomaly detection model to identify spoofing patterns in high-frequency trading, analyzing 10-100 million daily client orders.
- **Market Manipulation Detection:** Designed and implemented machine learning models to detect market manipulation strategies, including price manipulation and quote stuffing, ensuring compliance with financial regulations.
- **Large-Scale Data Analysis:** Built and deployed machine learning models using Java and Hadoop to enable large-scale financial transaction analysis and support surveillance systems.

Internship Experience

Microsoft IDC — Hyderabad, India
Intern: Virtual Machines, Data Migration and Azure — *May 2017 – Jul. 2017*

- **Proof-of-Concept Tool:** Built a tool using C++ and C# to migrate VMware Virtual Machines to Azure online VMs .
- **Feature Development:** Delivered features like zero data loss, live migration, checkpoints, and differential data transfer.
- **Impact:** Served as the basis for the Azure VMware Solution and resulted in a **full-time job offer** from Microsoft.

Indus OS Pvt. Ltd. — Mumbai, India
Intern: Text-to-Speech, Natural Language Processing and Markov Models — *May 2016 – Jul. 2016*

- **Prototype Development:** Created a prototype Hindi Text-to-Speech (TTS) engine based on English TTS engines.
- **Transliteration and Dataset Improvement:** Developed Hindi-to-English transliteration, integrated it with English TTS engines; Rebuilt a Hindi TTS prototype using Hidden Markov Model systems by resolving phonetic issues in a 1TB dataset.
- **Impact:** The improved model, extended to other Indian languages, now serves **200M+ users** on the Indus OS app store.

Teaching

As a Teaching Assistant at UC Irvine, designed and graded assignments and led discussions in Graduate **Data Structures**, Introduction to Programming (**Python**), Programming with Software Libraries (Python), and Critical Writing (English).