Rajat Poovaiah

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Education

- **Stony Brook University** — Stony Brook, NY
  Masters of Science in Computer Science; GPA: 3.98 — *Aug 2019 - May 2021*
- **Indian Institute of Technology, Kanpur (IITK)** — Uttar Pradesh, India
  Bachelor of Technology in Aerospace Engineering — *Aug 2011 - July 2015*

Publications

- **A method and system for dynamically generating medical reports**: **Indian Patent Office, Patent No.: 311461** Duraikrishna Selvaraju, Kumudini Kakwani, Rajat Poovaiah et. Al.

Skills Summary

- **Languages**: Python, Javascript, Java, C/C++, PHP, MATLAB, FORTRAN
- **Data Stores**: MySQL, PostgreSQL, MongoDB, ElasticSearch
- **Relevant Coursework**:
  - Introduction to Computer Vision - Image Processing, Feature extraction, Classification, Neural Networks, GANs, Object Tracking
  - Randomized Algorithms - Linearity of expectation, Pattern Matching, Markov Chains, Randomized Incremental Construction, Random Walks
  - Computational Geometry - Classifiers, Clustering, Motion Planning, Nearest Neighbor Detection
  - Discrete Mathematics - Geometric view of GANs, Optimal Transport Theory
  - Analysis of Algorithms - Algorithm design and analysis, Complexity Theory
  - Fundamentals of Computer Networks - Network Layers, Protocols, Routing

Work Experience

- **GlowRoad** — Bangalore, India
  Technical Consultant — *May 2019 - July 2019*
  - Tuned the parameters of the Java Virtual Machine to increase application stability and reduce resource utilization, thereby increasing uptime by 5% and reducing per instance costs by 50%
  - Automated and streamlined deployments to allow for seamless autoscaling and configuration management
  - Integrated monitoring utilities including the ELK (Elastic-Logstash-Kibana) stack for centralized logging and Sentry for error management and alerting
  - Established and encouraged adoption of core guidelines and best practices among the technology team and its shareholders

- **SigTuple** — Bangalore, India
  Senior Computer Scientist — *June 2017 - Aug 2018*
  - Designed and prototyped a program to run analyses directly on edge devices using TensorFlow to reduce turnaround times (by 38%) and alleviate the need for internet access
  - Built a distributed job scheduling cluster to optimize resource utilization during the training of deep neural networks over large volumes of medical image data thereby cutting cloud costs by 40%
  - Responsible for scaling the in house distributed, deep learning platform built on TensorFlow and Apache Spark through improvements to the architecture, data partitioning strategies and readability.
  - Redesigned the platform as an ecosystem of python packages each supporting a different use case (analysis, training, data processing)

- Architected and implemented a data access layer to act as an abstraction between applications requesting data from multiple cloud providers distributed as clients in multiple languages (python, javascript) with a unified interface to interact with a central server.
- Streamlined development by deploying and maintaining a continuous integration and delivery (CI/CD) pipeline for core projects and publishing a backbone/guideline for future projects

- **Finomena** Bangalore, India
  Software Development Engineer *Sep 2016 – May 2017*
  - Spearheaded efforts to increase the accuracy of an in house bank statement parser from approximately 65% to 97.3% with the help of computer vision and NLP techniques
  - Migrated from a synchronous data upload model to a distributed, publish-subscribe based model to offset response times and build a more robust, reliable system of ingestion of large volumes of user data.
  - Optimized multiple facets of our loan management system using a combination of query optimization, index tuning, result caching and network optimization

- **Quikr/Commonfloor** Bangalore, India
  Software Development Engineer *June 2015 - Aug 2016 (By Acquisition, Commonfloor)*
  - Integral team member in piloting a stack change to node.js and ReactJs.
  - Implemented a feedback loop for the recommendation engine to improve recommendations on similar items in inventory.

Research

- **Master's Thesis**: *Simulating the spread of a virus in indoor complexes over varying conditions*
- **Course Project, Fundamentals of Computer Networks**: *Inferring Device Identities Through BLE signal strengths*
- **Course Project, Computational Geometry**: *Social Distancing as a Motion Planning Problem*
- **Course Project, Discrete Mathematics**: *Multi-marginal optimal transport :Application to the kidney exchange problem*
- **Undergraduate Research Project**: *Direct Numerical Simulation of 2D transonic flow around airfoil undergoing pitching oscillation (Numerical Analysis/Scientific Computing)*

TEACHING EXPERIENCE

- **Teaching Assistant, Stony Brook University, Spring 2021**: *CSE595: Programming Abstractions*
- **Teaching Assistant, Stony Brook University, Fall 2020**: *CSE547/AMS547, Discrete Mathematics*
- **Teaching Assistant, Stony Brook University, Spring 2020**: *CSE307, Principles of Programming Languages*
- **Teaching Assistant, Stony Brook University, Fall 2019**: *CSE215, Foundations of Computer Science*
- **Academic Mentor, Counseling Service, IIT Kanpur**: *ESC101, Fundamentals of Computing*
- **Peer Mentor, CSE Dept, IIT Kanpur**: *ESC101, Fundamentals of Computing*

Leadership Experience

- **Committee Head, Group for Energy and Environment Engineering, IIT Kanpur**:
- **Committee Head, English Literary Society, IIT Kanpur**:

Honors and Awards

- **First Place, Company Hackathon**, SigTuple
- **First Place, Company Hackathon**, Commonfloor
- **Certificate of Merit**, Indian National Mathematics Olympiad
- **Honorable Mention**, Singapore Mathematical Olympiad (Junior Section)
- **Certificate of Merit**, Indian National Olympiad in Informatics