

Archil Kumar Srivastava

Graduate Student, UC San Diego

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EDUCATION

University of California San Diego, San Diego, CA

Master of Science in Computer Science

GPA: 4.0 / 4

September. 2021 – May. 2023

Indian Institute of Technology Jodhpur, Jodhpur, India

Bachelor of Technology in Computer Science & Engineering

GPA: 8.38 / 10

July. 2014 – May. 2018

RELEVANT SKILLS

Coding Languages: Python, Java, JavaScript

Tools & Frameworks: TensorFlow, TF-Probability, Keras, PyTorch, Pandas, NodeJS, SQL, MongoDB, Kafka

Research: Excellent intuition and theoretical knowledge of mathematics and computer science. Pursues research in an organized and systematic way. Applies best design practices to write a robust, scaleable, and well documented code

WORK EXPERIENCE

Graduate Student Researcher, The Nemati Lab, UC San Diego

Guide: Dr. Shamim Nemati

September. 2021 – Ongoing.

- **Automated bacteria detection and antibiotic suggestion**
 - Using deep learning to estimate the bacteria present in a sepsis patient, thus circumventing the need for a lengthy bacteria culture.
 - The system will also predict the antibiotics which are likely to have a positive affect on the patient.
 - Implementing a real-time pipeline for the same at the UC San Diego Medical Center.
- **Uncertainty Estimation in Sepsis Prediction**
 - Building ML workflows to predict the onset of sepsis from clinical data and make it robust across different clinical settings.
 - Experimenting with uncertainty estimating methods to capture epistemic and aleatoric uncertainty.
 - Submitted an article to the AMIA 2022 Annual Symposium, analysing the behaviour of the uncertainty estimation methods in different types of regions of the input space.

Senior Software Developer

D.E. Shaw India Pvt. Ltd., Hyderabad, India

July. 2018 – April 2021.

- **Portfolio Manager Trading Tool**
 - Developed a trading software for the Fundamental Equities team.
 - The software supported real-time market data analysis, live order placement, and setting long-term order targets.
 - The tech stack consisted of Python APIs in the back-end, Kafka for real-time state maintenance and data enrichment, NodeJS server, Redux for client-side subscriptions, and ReactJS for the UI.
- **Fundamental Equities Pivot Tool**
 - Unified and organized the historical trading data maintained by different strategical teams into a structured format.
 - Developed an application to visualize historical trading data in the form of pivot tables and charts.
 - Used active caching to update new data and handle any historical corrections in the data.
 - Cached the data at multiple aggregated levels to reduce query time.
 - Used a Pandas wrapper to store data, cron jobs for active caching, Python APIs to query data, and React JS for the UI.

Software Developer Intern

D.E. Shaw India Pvt. Ltd., Hyderabad, India

May. 2017 – July. 2017

- Developed a web app for Portfolio Managers to do a mathematical analysis of theoretical portfolios.
- The tech stack consisted of Python APIs on the back-end and React JS for the UI.

Software Developer Intern

Steero (Startup), Mumbai, India

May. 2016 – July. 2016

- Worked as a full-stack Web Developer Intern, adding new features to their main website and CRM portal.
- Used Java Spring framework with Java at back-end, JSP and AngularJS for front-end and MySQL as database.

PROJECTS

Blackjack playing Agent using Reinforcement Learning

Guide: Dr. Sicun Gao

November. 2021 – .

- Implemented in Python an agent which learns to play the game of Blackjack.
- Used Q-learning on a Monte Carlo simulation of multiple games.
- The agent reached a win rate of 40%.

One Sided Terrain Guarding With Limited Visibility

Guide: Dr. Aritra Banik

January. 2018 – April. 2018

- Devised a novel FPT algorithm for a limited version of one-sided terrain guarding on a 1.5D terrain, where each guard can see upto p other guards.

Indoor Localization Using Bluetooth Low Energy

Guide: Dr. Venkata Ramana Badarla

January. 2017 – April. 2017

- Implemented an Indoor Localization System in the computer science building of IIT.
- Deployed Bluetooth LE devices at various locations in the building and developed an Android app which used the signal strength received by the user's device to estimate the location.

Pattern Matching with K mismatches and few Don't Cares

Guide: *Dr. Venkatesh Raman*

Jul. 2016 – Nov. 2016

- Did a literature survey of the various results published with respect to the Pattern Matching Problem and its variations, like having wildcards in the pattern or no-care characters in the text.
- Implemented an existing result by Nicolae and Rajasekaran in code. Made a detailed comparison of the runtime with several existing algorithms.

EXTRA-CURRICULAR

- **Head, Programming Club (2016-2017):** Coordinated and managed year round activities of the Programming Club at IIT Jodhpur.
- **Student Guide, Counselling Services (2015-2016):** Mentored 10 first year students as a student guide for their smooth transition into college/hostel life at IIT Jodhpur.
- Qualified for the ACM ICPC 2017-2018 Regional round.
- Drummer at the music club of IIT Jodhpur. Performed at various inter-college music events.