

# Prakash Sankhla

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## EDUCATION

**Indian Institute of Technology (IIT) Kharagpur, India**

**Major:** Integrated MSc. in Mathematics and Computing

**CGPA: 7.75/10.0**

2019 - 2024

## WORK EXPERIENCE

**Software Development Engineer Intern**

**May 2023 - Jul 2023**

Jio Platforms Limited

- Enhanced the Wholesale Order Details feature, including Payment history and order status for the B2B AJIO service
- Developed Java code to retrieve data from an API endpoint, utilizing HttpURLConnection for HTTP requests
- Implemented authentication using Basic Auth credentials and Base64 encoding to access secured API resources securely
- Utilized GSON library to parse intricate JSON responses into organized Java objects, extracting order details accurately
- Ensured robust error handling by managing exceptions and providing informative error messages for failed API requests

## PROJECTS

**Retinal Image Analysis Using Deep Network**

**Aug 2023 - Present**

Master's Thesis Project | Prof. Debjani Chakraborty

- Developed a deep learning model for Retinal blood vessel segmentation using a **Nested U-Net** architecture in PyTorch
- Integrated **Frangi filter** to enrich feature maps, leveraging structural details for accurate retinal blood vessel detection
- Implemented data augmentation Techniques and utilized a hybrid loss function combining Dice and binary cross-entropy
- Achieved performance metrics including **97.2%** accuracy rate, **81.8 %** sensitivity , **98.4%** specificity, and **90.1%** AUC

**Problem Finder | Search Engine for Coding Questions**

**May 2023 - Jun 2023**

AlgoZenith

- Created a search engine for 16,000+ DSA questions from CodeChef, and Leetcode using **Beautiful Soup** for web scraping
- Preprocessed data by applying lemmatization, stemming, removing stopwords and developed BM25 model for top results
- Enhanced search accuracy using a probabilistic spell check algorithm while converting numerical queries into text format
- Deployed the server using Python **Flask** for backend and **HTML/CSS** for frontend, hosting the search engine on Render

**AnyTimeFood | PATEL Hall of Residence**

**Feb 2022 - Mar 2022**

Interhall OpenSoft Competition

- Created a decentralized server-based web app for a food chain restaurant, ensuring continuous operation of core services
- Designed and developed the **Microservice architecture** using **React.js**, **Node.js**, **Express.js**, and **Cassandra** as database
- Implemented **JWT** in conjunction with salting and peppering techniques to fortify authorization and authentication
- Documented the codebase including creating **class & use case diagrams** and software requirement specification document

## TECHNICAL SKILLS

**Programming languages:** C, C++, Python, Java

**ML/AI:** Pytorch, Numpy, Pandas

**Web Technologies:** JavaScript, HTML, CSS, NodeJS

**Miscellaneous:** Git, MATLAB, Postman, IntelliJ IDEA

## CERTIFICATIONS

**AZ-201: Applied Algorithms and Data Structures | AlgoZenith**

**Dec 2021 - Apr 2022**

- Completed a comprehensive 16-week live training program on **Data Structures and Algorithms** through the Algozenith
- Learned to apply problem-solving paradigms such as STL, Greedy, Binary Search, Graph, Dynamic Programming

## ACHIEVEMENTS

**INSPIRE Scholar**                      Awarded Rs. 60,000 by the Government of India for excellence in sciences                      2020

**JEE Main**                                      Attained a percentile of 99.87% among more than 1.5 million applicants                                      2019

**JEE Advanced**                                      Ranked in the top 0.82% among the 200k shortlisted candidates from above                                      2019

## RELEVANT COURSEWORK

**Artificial Intelligence :** Linear Algebra for AI and ML, Artificial Intelligence: Foundation and Applications

**Computer Science:** Design & Analysis of Algorithms, Object Oriented Systems Design, Computer Organisation & Architecture

**Mathematics:** Linear Algebra, Probability and Statistics, Real Analysis, Partial Differential Equations, Discrete Mathematics

## POSITIONS OF RESPONSIBILITY

**Student Member | Student Welfare Group | IIT Kharagpur**

**Dec 2020 - Sep 2021**

- Spearheaded a 30-member team to tackle student-related issues, working closely with the Dean of Student's Affairs
- Administered Student Mentorship Programme 2020-21, a student-led initiative engaging with 1800 UG freshmen
- Conducted PDS Doubt Sessions to provide assistance to over 600 first-year students

## EXTRACURRICULARS

**Athletics :** Competed in 3 running events as a member of the Patel Hall Athletics Team in the academic year 2021-22

**Football :** Part of Inter Hall Football Team of Patel Hall of Residence, IIT Kharagpur, for the academic year 2021-22

**NSO :** Completed two years in Health and Fitness under National Sports Organization, IIT Kharagpur, for the year 2019-2021