

Sourav Sukumaran

Final Year Undergraduate, Dept. of Electronics and Electrical Communication Engineering
Minor in Computer Science and Micro-Specialization in Artificial Intelligence, IIT Kharagpur

Email : souravunni27@gmail.com

Phone : +91-7479185883





Academic Qualifications

Year	Degree/Certificate	Institute	CGPA/%
2019 - Present	B.Tech	Indian Institute of Technology, Kharagpur	9.11/10
2019	CBSE(XII)	St Antony's Public School,Kottayam	97%
2017	CBSE(X)	Jawahar Navodaya Vidyalaya, Kasargod	10/10

Experience

- **SDE Intern** *Salesforce, Health Cloud, Hyderabad India* (June - August 2022)
 - Developed **Hierarchical Chart LWC Component** using **d3.js** providing **better scope** for hierarchical data visualisation.
 - Improved the **interactiveness** and **customisability** by adding zoom-drag,custom event dispatch and accessibility features.
 - Acheived **improved performance** in the visualisation of larger hierarchical data with data being loaded **on demand** and fetched data being **cached** in the browser and **reused**. .
- **EDG Intern** *MathWorks, Core Test Infrastructure Team, Bengaluru India* (May - June 2022)
 - Developed an alternative to the XML format of decorated tests in test selection codebase to **improve end user test time**.
 - Implemented a **perl script** that parses user-input, extracting test schedules to a perl hash which is later encoded to **JSON**.
 - Improved the test-run startup time from **several minutes** to **few seconds** allowing **easier parsing** of json serialised data.

Key Projects

- **BioMedical-IR-System** *Prof. Animesh Mukherjee and Prof. Saptarshi Ghosh* 
 - Developed an **IR system** on Trec-COVID dataset with 60k paper abstracts answering specialised **wildcard queries**.
 - Built **inverted positional index** parsing the documents and prepared a structured corpus using **bs4** and **nltk** libraries.
 - Computed the top 10 results for each query based on **tf-idf vectors** evaluated using MAP and NDCG metrics.
- **MERN Places App** *Self Project* 
 - Built a full-stack web app using **ReactJS**, **NodeJS** and **mongoose** where users can login, view and share places.
 - Implemented different **data models** updating the **relationship** amongst them during CRUD operations.
 - Added features like image upload,input validation along with user authentication and authorization.
- **Board Games** *Course Project, Prof. Aritra Hazra, Reinforcement Learning* 
 - Built **AI agents** to **intelligently** play different board games like ping-pong, tic-tac-toe and minesweeper.
 - Implemented a **RL** agent playing the 2D ping-pong game using **policy gradients**,**TD** and **SARSA** techniques.
 - Used **Minimax Algorithm** to implement **Tic Tac Toe AI** which returns the best move for any initial board state.
 - Programmed an AI agent which efficiently plays the **Minesweeper** Game based on its knowledge base in **python**.
- **Data-Hungry-Transformers** *Course Project, Prof. Abir Das, Deep Learning* 
 - Implemented architectural changes to state-of-art **Vision Transformer** model to classify **tiny-ImageNet** data in **pytorch**.
 - Added **Shift Patch Tokenisation** for small datasets improving accuracy by **26.6%** along with **better convergence**.

Awards and Achievements

- Secured All India Rank **2890** in **JEE Advanced 2019** and All India Rank **1905** in **JEE Main 2019** among 958,000+ candidates
- Cleared **Regional Mathematical Olympiad(RMO)** 2017 held by Department of Atomic Energy,India.
- Secured **Rank 8** in **Kerala Engineering Architecture Medical(KEAM) Examination**, among 90,000+ candidates

Technical Skills

- **Programming Languages:** C, C++, Python, JavaScript, MATLAB, Perl
- **Frameworks and Libraries:** ReactJS, D3.js, NodeJS, PyTorch, LWC
- **Utilities:** HTML, CSS, Git, Postman, Beautiful Soup

Competitive Programming

- Qualified to **ICPC Asia Amritapuri Regionals 2020** by standing **333rd** out of 3500 registered teams from colleges nationwide.
- Stood **1649th** in **Facebook HackerCup 2020 Round 1** among 13,820 participants worldwide and qualified for **Round 2**.
- Stood **477th** and **525th** in **Google KickStart 2021 Round D,H** respectively, among around 11,000 participants worldwide.
- Active participant in contests in **Codeforces (max rating: 1802(Expert))** and **Codechef (max rating: 2027(5 star))**

Relevant Courses

Algorithms Theory and Lab	Machine Learning	Artificial Intelligence
The MERN Fullstack Guide (Online)	Deep Learning	Information Retrieval
Probability and Stochastic Processes	Reinforcement Learning	Analog and Digital Communication
Digital Electronic Circuits	Microcontroller and Embedded Systems	Digital Speech Processing