SATYAM SHARMA | IIT Kharagpur | Mathematics and Computing

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ACADEMIC PROFILE

YEAR	DEGREE/EXAM	INSTITUTE	CGPA/MARKS
2022	Integrated M.Sc.	Indian Institute of Technology, Kharagpur	**8.12** / 10
2017	CBSE Class XII	Nalanda Academy	92.6%
2015	CBSE Class X	Kendriya Vidyalaya, Chittaranjan	**10** / 10

INTERNSHIPS

Mastercard Pvt. Ltd | Software Developer   **May' 21 - July'21**

In-house Batch Processes Health Monitoring System | Data and Services | C#
- Developed **Permissive Parser** for **atomic** bulk onboarding requests from queries present in raw file adopting secure coding practises
- Achieved **8x performance boost** and **91% code coverage** in bulk onboarding by developing dedicated APIs
- Awarded with a **Pre-Placement Offer** for exceptional performance out of 16 in office interns from a pool of 1000+ applicants across IITs and NITs

DRDO | Centre for Artificial Intelligence and Robotics (CAIR) | R&D   **May' 19- July' 19**

Re-engineered an Expert System Shell to determine the solution of NP-hard Relational Riddles using rule based AI | C++
- Enhanced the software's processing capacity from **5 variables to 20 variables** with marginal time overheads using the Object Oriented Paradigm
- Debugged the **undocumented** legacy code including **memory leaks** affecting feature for **Satisfiability Testing** of Knowledge Bases using smart pointer
- Re-structured class designs to **optimise heap memory allocation** and **introduced Functional Programming** to improve code readability

WORK EXPERIENCE

Opus Quaint | Software Developer | Freelance   **May' 20-Aug'20**

AI Based solution for Recruitment | Python, NodeJs, MongoDB
- Worked with a start-up to develop the MVP which provides AI based solutions for recruitment by also analysing past employees' transitions
- **Built a library to control conversation flow in chatbots** from scratch, capable of building most of the generic chatbots within **10 minutes**
- **Built whatsapp and linkedin bot** using the library to validate scraped data, enquire job preferences and schedule interviews on a **real-time basis**
- **Dockerized** the entire codebase to eliminate the issues raised due to different environments and dependencies
- Developed a **model using fastText to autocorrect** scraped data for extracting information including personal and professional details

PROJECTS

Mitra: Distributed Chat Application | Self Project
- Developed a **fault tolerant** Web Chat application with multiple servers having a login/signup portal secured with **cryptographic hashing**
- Improved **latency** and enabled **high availability** using **distributed database** and floating IPs with multiple **load balancers** for servers
- Implemented Features including **Last Seen, Read Recipient, Notification Bar** by establishing a socket based connection with server

NikOS: Operating System | Self Project
- Built a 32-bit operating system **from scratch** for a completely educational purpose with features including **tab-based auto-completion** using Trie
- **Created a custom library** for system call and string handling as well as **drivers for keyboard and mouse**
- **Implemented dynamic memory allocators**, **enabled Paging and Segmentation** for virtual memory, **re-initialised GDT and IDT** etc

Vaidya | Term Project | Soft Computing tool in Engineering

Human Disease Prediction using Fuzzy Mathematics, Prof S. K. Barai, Director, BITS Pilani (ex-Dean of Student Affairs, IIT Kharagpur)
- Collaborated with a peer group to develop a software based on fuzzy logic to determine the extent of symptoms of user, matching with the membership function of symptoms against each disease to **determine top 3 most probable diseases** with an **accuracy of 77%**
- **Mechanism for handling ambiguity** during disease prediction using external parameters including season, epidemic/pandemic etc

Natural Language Processing based Search Engine for Law Practitioners | OpenSoft 2019 | IIT Kharagpur
- Developed a software to enable Law Practitioner to fetch similar cases and their metadata from a database of **65,000 unprocessed lawsuit files**
- **Trained a text classifier** based on **fastText word embedding** to classify files (Violence, Property Disputes, Sexual Harassment etc) with features extracted using **Named Entity Recognition** and **Automated Keyword Extraction** achieving an **accuracy of 73%**

SKILLS AND EXPERTISE

Programming Languages: C, C++, C#, Python, Java, Javascript, NodeJs   **Databases and Technologies:** MySQL, MongoDB
OS and Tools: Linux, Windows, Docker, LXC, Git, Vim, Postman   **Others:** Socket Programming, Low Level Programming

COURSEWORK

Data Structures | Design and Analysis of Algorithms | Object Oriented Systems Design | Probability and Statistics | Computer Organization and Architecture | Theory of Operating Systems | Discrete Mathematics | Database Management System | Switching and Finite Automata

AWARDS AND ACHIEVEMENTS

- **ACM ICPC 2020, Asia West**: Secured a **rank of 43** in **ACM ICPC Kanpur Regional Main Round 2020** (postponed due to pandemic to 2021)
- **Facebook Hacker Cup, 2021**: Secured a rank of **848** among **12692** participants in **Facebook Hacker Cup 2021** Round 1 qualified from **34586 participants**
- **Google Code Jam, 2021**: Secured a **rank of 1615** in Google Code Jam 2021 Round 1B among 7000+ participants qualified from **37000+ participants**
- **KVPY, IISc Bangalore** : **Research Fellow**, Kishore Vaigyanic Protsahan Yojana (KVPY), Indian Institute of Science, Bangalore
- **JEE Advanced, 2017**: Secured an **AIR of 1275** out of **2,25,000 candidates** who qualified for Joint Entrance Examination(JEE) Advanced
- **NSEC, 2016**: Secured a position in the **Top 1% at State Level** (Rajasthan) in **National Standard Examination in Chemistry**

POSITIONS OF RESPONSIBILITIES

Volunteer | Codechef   **Apr'19-Present**
- Organised and Mentored Competitive Coding Summer Camp for School Students witnessing footfall of more than 50 students at Bengaluru

Vice Captain | OpenSoft Team | Patel Hall of Residence | IIT Kharagpur   **July'19-Apr'20**
- Led a team of 20 students under the guidance of Captains which participates annually in Open Soft, Technology General Championship, IIT Kharagpur
- Conducted Knowledge meeting ,Brain Stroming Sessions for the team and guided Junior Members in Preparatory Projects

Secretary | Communiqué | IIT Kharagpur   **July'18-Apr'19**
- Responsible for organising events both intra-society and open to all sessions for the soft skill development of the student community
- Organised open to all Mock Group Discussion/Personal Interview sessions, Placement Drive, Case Interviews, Think Tank sessions etc

EXTRACURRICULAR ACTIVITIES

- **Basketball**: Represented KVS Kolkata region at KVS National Level 2012. Member of Patel Hall Residence's basketball team
- **Dramatics**: Member of English Dramatics and Bengali Dramatics team of Patel Hall of Residence for the academic session 2018-2019