

EDUCATION

International Institute of Information Technology, Hyderabad
B.Tech. (Honours) in Computer Science & Engineering

Aug '15 - July '19
Cumulative GPA: 8.61/10

EXPERIENCE

Senior Software Developer | Bloomberg – New York

July '22 - Present

- Technologies: C++, Library-Development, Metaprogramming
- Developing an embedded analytics engine from scratch for powering inhouse services and query language
- High performance library written in modern C++ with metaprogramming to ease development of new kernels
- Replicating functionality and improving the language spec of the previous query language

Software Developer | Bloomberg – London

Aug '19 - July '22

- Technologies: C++, Python, Distributed Systems
- Working with the Ticker Plant team, collecting and processing a high volume of data and providing it to internal clients
- Migrated automatic Python bindings for the C++ codebase to new infrastructure while preserving the API
- Innersource contributions @ Bloomberg. Added support for TIME_INTERVAL in the Rust driver for Comdb2

Product Intern | Adobe Systems – Noida

May '18 - July '18

- Technologies: Distributed Systems, Socket Programming, NodeJS
- Created realtime collaborative editing service like Google Docs for graphical documents with support for offline editing
- Integrated it with an opensource vector graphics app, SVG-Edit

Systems Administrator | IIIT Hyderabad

Aug '18 - July '19

- Technologies: OpenVZ, LDAP, Networks, Email, GSuite
- Aided migration of a subset of users to GSuite which is kept in sync with the institute LDAP. Also helped develop a email backup solution.
- Responsible for on call, maintenance, and deployment of institute-wide infrastructure and services (LDAP, Squid, Email, lists, NS, etc)

Undergraduate Researcher | Centre for Visual Information Technology – IIIT Hyd

July '17 - July '19

- Technologies: Deep Learning, PyTorch
- Working with Prof CV Jawahar on Document Semantic Structure Extraction to aid blind students to understand lecture content
- Earlier worked on face recognition and automated analysis of news videos & bias detection

Open Source Contributor | Google Summer of Code – GNOME

Apr '16 - Aug '16

- Technologies: Vala (C#), C, GLib, GTK, Linux Kernel APIs
- Worked On GNOME Games - an emulator app, to add gamepad/game controller support
- Developed a library for abstracting the Linux Input API and integrated it with GNOME Games

Systems Administrator | Felicity – IIIT Hyderabad

Aug '17 - Aug '18

- Technologies: Docker, NodeJS, Java, PHP, Kong/Nginx, LDAP
- Migrated a monolith PHP app to a services based architecture with **dockerized** deployment
- Migrated SSO system and user accounts from CAS+LDAP to Keycloak (OIDC provider)

Fullstack Developer | Paymatrix

Aug '16 - Nov '16

- Technologies: Golang, ReactJS, MongoDB, Javascript, HTML, CSS
- Made an API-based backend using Golang and a frontend app in ReactJS consuming this API
- Extended their app to support paying school fees and added data analytics to their other offerings

PROJECTS

Raft Consensus Algorithm

[Distributed Systems, Consensus Algorithm, Protobuf, Socket, C++]

- Implemented a fault-tolerant and performant consensus algorithm to sync state machines across multiple servers
- Implemented in C++ using Protobuf for serialization and C++11 standard library for threading

Games - BrickBreaker, Blockorz & a WebGL Aquarium

[C++, OpenGL, Javascript, WebGL]

- BrickBreaker and Blockorz are 2D and 3D games respectively coded from scratch in OpenGL and C++ without using any physics/game engine

- WebGL Aquarium is a 3D aquarium with lighting, bubbles, reflective glass and multiple kinds of fish

Linux Shell [C, UNIX System Calls]

- Bash-like shell which interacted with the kernel using syscalls. Supported user-defined and built-in commands.
- Also supported piping and input-output redirection along with foreground-background jobs

Printed equation to LaTeX [Digital Image Processing, Matlab, SVM]

- Used classic image processing techniques like morphology to segment out the characters
- Used a basic SVM+HoG classifier for recognizing the characters

Ultimate Tic-Tac-Toe Bot [Artificial Intelligence, Heuristics, Python]

- AI bot which plays a competitive 2-player game called Ultimate Tic Tac Toe
- Uses Min-Max algorithm with Alpha-Beta pruning to evaluate the best move among the numerous possible outcomes

Face-recognition based authentication app [Computer Vision, Deep Learning, Python]

- Allows authentication to a web portal via face recognition. Uses DLib for detecting faces and a ResNet feature extractor
- A SVM is used as classifier trained on the small set of images we get for the person

Mini-SQL engine [SQL, Database Systems, Python]

- Implemented a small SQL engine with support for basic queries, joins and aggregate functions

Mini-Dropbox: P2P File Sharing System [Sockets, Networks, P2P, TCP, UDP]

- Implement a peer-to-peer dropbox which keeps two directories in sync and could work on both TCP & UDP sockets

RELEVANT COURSES

- **Core Courses:** Data Structures, Algorithms, Computer Networks, Information Security, Linux Tools & Scripting
- **Advanced Courses:** Distributed Systems, Operating Systems, Database Systems, Compilers, Programming Languages
- **ML/AI Courses:** Machine Learning, Computer Vision, Artificial Intelligence
- **Other Courses:** Digital Signal Analysis & Applications, Abstract Algebra, Graph Theory, Linear Algebra & Probability

TECHNICAL STRENGTHS

Computer Languages	C/C++, Java, Python, Javascript, PHP, Go, MATLAB
Software & Tools	Git, Bash, ReactJS, ExpressJS, Django, Flask, Redux, HTML, CSS, Hadoop
Machine Learning Tools	PyTorch, Torch, Keras, MATLAB, OpenCV, NumPy, Pandas

TEACHING EXPERIENCE

Teaching Assistant | Computer Graphics Jan '18 - July '18

- Course with over 150 students registered
- Took multiple tutorials introducing OpenGL and matrix transformations
- Responsible for creating assignments and providing boilerplate code for the same

Teaching Assistant | Linux Scripting & Tools Aug '17 - Dec '17

- Took labs introducing over 200 freshers to Linux, Git and Bash. Also introduced basic HTML, CSS and JS
- Evaluated assignments related to Bash and a project involving a basic website

POSITION OF RESPONSIBILITY

Admin | OpenSource Development Group Club – IIIT Hyderabad Aug '17 - Aug '18

- Responsible for promoting open source awareness among the student community
- Organized multiple workshops till now collaborating with opensource organizations like Mozilla & FOSSASIA
- Helped organize PyConf Hyderabad, one of the biggest conference in the city that year in IIIT

Coordinator | Felicity Webdev Team – IIIT Hyderabad Aug '17 - Aug '18

- Developing the main website (PHP) for the fest as well as portals for the online events & contests
- One of the portals was a Google Forms alternative with integrated payments for registering to the various offline events

ACADEMIC ACHIEVEMENTS

- Qualified for Indian National Math Olympiad 2014 and Indian National Physics Olympiad 2015
- Ranked in National top 0.05% (534 out of over 1.3 million participants) in JEE Mains 2015 and National top 1.5% (1816 out of 117,000 participants) in JEE Advanced 2015
- Dean's Merit List Monsoon '15, Spring '16 and Monsoon '17
- Received Arunalal Scholarship 2014-2016 from Physical Research Laboratory (Ahmedabad)