

# Aditya Kumar Bej

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## AREAS OF INTEREST

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My areas of interest lie in the field of Software Engineering, Programming Languages and Compilers, Network Systems, Cryptography, and System Design and Architecture

## PROFESSIONAL EXPERIENCE

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- **Zensar Technologies** Bangalore, Karnataka  
*Software Engineer - Blockchain Developer* *Feb 2021 - Present*
  - **Team:** Working in the Blockchain Research and Development Team for developing blockchain solutions and smart contracts.
  - **Domain:** Knowledgeable in Blockchain based solutions with market research knowledge on the same, Crypto-currency and other various implemented Distributed Ledger Technologies.
  - **Operating System:** Linux environment image spun up in Docker. Bash scripting interface.
  - **Tech stack:** Python DSL, Node.js, React.js, Digital Assets Modelling Language (DAML) for smart contracts.
  - **Back-end:** Based on the Symbiont, Quorum, Hyperledger Fabric blockchain framework. Back-end tech-stack includes Python for Smart contracts and Node, Express for Middleware.
  - **Front-end:** Front-end development for Fintech POC applications using React.js framework.
  - **DevOps:** The Blockchain network is a set of Docker containers orchestrated by Kubernetes cluster hosted in AWS. Spinning custom build images and deploying to Docker hub.
  - **Cloud:** Worked in Amazon Web Services - Sagemaker feature. Experienced in writing and invoking Lambda functions, S3 storage modifications and invoking AWS services using Python Boto3 scripts.
- **TeamIndus** Bangalore, Karnataka  
*Ground Systems Software Developer* *Oct 2020 - Jan 2021*
  - **Team:** Worked as part of the Ground Software team with mentorship of ex-Indian Space Research Organisation (ISRO) and European Space Agency (ESA) scientists to develop the software used in the ground systems to provide an interface between the Lunar Rover in Space and operator in Earth.
  - **Domain:** Knowledgeable in the end to end Mission Planning/Operations and all flight sub-systems of cis/trans-lunar space launch missions.
  - **Documentations:** Worked on creating technical documentations such as Software Design Documents, Interface Control Documents and Systems User Manual.
  - **Operating System:** Worked on Ubuntu and CentOS distributions as the environment for development. Knowledgeable in Shell scripting and Linux based features.
  - **Back-end:** Dev Environment is based on the Yamcs software. Developed using Java-Maven build predominantly for the various modules of the different sub-systems in the Lunar Rover. API and Middleware development using Python-Flask framework
  - **Front-end:** Worked on the front-end development using Eclipse-RCP application, Java Swing, Node.js and Angular.
  - **Scripting:** Worked on implementing Python and Javascript based scripting for the Yamcs studio application.
  - **Network protocols:** Worked on HTTP APIs and Websocket handshakes. TCP/IP, UDP and CCSDS network protocols were used to establish communication between Client and Server
  - **Database:** Worked on extracting and archiving of the Housekeeping Telemetry packets in RocksDB (NoSQL) database. Experienced in Relational and Non-Relational Databases.
  - **Configuration and Dependencies:** Worked on developing and configuring the YAML files according to definitions defined in Yamcs.
- **Ernst & Young** Bangalore, Karnataka  
*Associate Software Engineer* *Nov 2018 - Sep 2020*
  - **Team:** Worked as a part of an International Team, handling the Indian division. Worked in an Agile based environment.

- **Domain:** Knowledgeable in the Insurance and Banking domains. Worked on Policy, Billing and Claim for the Insurance project and Capital Markets and Wealth Asset Management in the Banking project.
- **Front-end:** Used React.js and JQuery to build the front-end for various Proof of Concept applications in Insurance and Banking
- **Back-end:** Worked on trade order conversions for Equities and Options and Quantitative development in an existing algorithmic trading system using client-side server data running in a cloud-based environment
- **Insurance Project:** Developed GOSU scripts for the Guidewire product based on various Data Structures and Algorithmic analysis to achieve PROD quality code.
- **Banking Project:** Worked on data extraction of trades for the order analysis using queries to extract data from client's Enterprise Database (EDB), Apache SOLR and SQL database.
- **Web services:** Worked on building REST API's in Flask and Spring Boot framework. API testing was done in POSTMAN.
- **Testing:** Involved in designing the unit test plan & testing all the unit code functionalities developed for the trading system applications for Equity, Options and Syndicate Products.

## RESEARCH EXPERIENCE

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- **Major Project Research work** Chennai, TamilNadu  
*Mind Controlled Wheelchair* Dec 2017 - May 2018

Developed a cost-effective working prototype of a Mind Controlled Wheelchair. Researched about brain wave acquisition using EEG Headset, Sensory processing and actuation systems, Embedded Programming in C, Signal acquisition and processing using MATLAB, Android based operations interface using JavaScript. Achieved efficient hit rate probabilities of wheelchair movement from the extracted brain wave frequencies. Paper published in the Journal of Advanced Research in Dynamical and Control Systems.

## PROGRAMMING SKILLS

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**Languages:** C/C++, Javascript, Java, Python, MATLAB, Bash

**Operating System:** Linux(Ubuntu and CentOS), Windows, MacOS

**Databases:** SQL, MySQL, RocksDB, PostgreSQL

**Tools/Frameworks:** Docker, Kubernetes, Git, Spring boot, Flask, MERN Stack, POSTMAN, LaTeX

**Communication Protocols:** TCP/IP, UDP, Websockets, CCSDS

## EDUCATION

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- **SRM Institute of Science and Technology** Chennai, TamilNadu  
*Bachelor of Technology in Electronics and Communications; CGPA: (8.83/10.0)* May. 2014 – June. 2018

## PROJECTS

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- **Mind Controlled Wheelchair:** Designed the software and hardware of a Mind-controlled wheelchair. Published a Research paper in the Journal of Advanced Research in Dynamical and Control Systems (Issue: 05-Special, Year: 2018, Pages: 941-944) (**Link to publication** : [jardcs.org/backissues/abstract.php?archiveid=3646](http://jardcs.org/backissues/abstract.php?archiveid=3646).) **Tech stack** - Embedded C, MATLAB, Javascript.
- **Eyeball Controlled Wheelchair:** Designed the software and hardware of the Eyeball-controlled wheelchair. Programming language- Embedded C. Selected in the top 14 projects in the Engineering Department. **Tech stack** - Embedded C, MATLAB.
- **Interview Tracking System:** Designed the front end and developed the back-end system for an application that helps a user to maintain and perform various functions on managing candidates appearing for an interview. **Tech stack** - Java, Javascript, JDBC-MYSQL.
- **Neural Movie Recommendation System:** Neural Collaborative Filtering Models for Recommender System with emphasis on Implicit Data. Dataset used is Movielens. **Tech stack** - Python (TensorFlow, Keras, Theano).