# Full-time Software Engineer Applicant 2021

**Ankush Kr. Mandal**

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## EDUCATION

**Master of Computer Science (MCS),** Arizona State University (3.85/4) May 2021
**Bachelor of Technology (Dept. of CSE),** National Institute of Technology Durgapur (~3.8/4) May 2019

## SKILLS

**Programming Languages**: Python, Java (React, SpringBoot), C/C++, MATLAB, LATEX, Angular
**Operating Systems**: Linux, Windows, Raspbian, Armbian; **Hardware**: Orange Pi, Raspberry Pi
**Web Development**: JavaScript, HTML 5, CSS 3, JSON, Node.js, phpMyAdmin, XAMPP
**Data Engineering:** SQLServer, MySQL, MongoDB, Postgres

## WORK EXPERIENCE

**CYR3CON**
**-Software Developer Intern** May 2020-present

- Developing python crawlers and parsers using Mechanize, Selenium and other technologies with minimum presence onsite. Scraping hacking forums, repositories and marketplaces on the dark web for data collection to predict cyber-attacks. Managing Grafana dashboards to visualize the production errors for both crawlers and parsers improved time by 15%. Deployed crawler and parser product on **AWS** and maintaining production and database (**MongoDB**) architecture.

**Smart Wireless Applications and Networking (SWAN) Labs, IIT Kharagpur**
**-Security Intern** May 2018– July 2018

- Developed and implemented an enhanced security scheme using Stackelberg Game theory and encryption algorithm in C++. Simulated the IoT network scheme, SHoSITe in **MATLAB** for which reduced message overhead & computation time by 33%.

**Mobile Computing and Network Research Group, NIT Durgapur**
**-Winter Intern** May 2017 - Dec 2017

- Programmed a duplex chat application using User Datagram Protocol based on the client-server interface in Java [Project]. Designed & programmed packet-based data transmission protocols (GBN & SRP) to share information in post-disaster. Assembled the protocols on the open-source single-board computer (**Orange Pi Plus 2**) using **Etcher**, **PuTTY** [Project].

## ACADEMIC PROJECTS

- **Secure Banking Application to maintain immutability & privacy of transactions** Jan 2020-May 2020
  Technologies: **React, Angular JS, Spring Boot, Bootstrap, SQL Server**
  The application has limited functionality, security requirements using **Spring Boot** for secure banking transactions. 3-tier employees and users can create checking, savings accounts, credit card (user-account management) SQL Server.

**Image recognition and classification from a large dataset of 11K hand images** Sept 2019
Technologies**: Python (NumPy, pandas, scikit-learn, scikit-image, SciPy, OpenCV, Matplotlib), MongoDB**

- Implemented HOG and Colour Moments; extracted feature descriptors for images using **SciPy, OpenCV, NumPy & pandas**. Applied dimensionality reduction (**PCA**, **SVD**) on the features; found the most similar images (**skimage, sklearn, NumPy**). Implemented **SVM** & **Decision Tree**-based classifier to classify an unlabelled image with an accuracy of 65% (**skimage**).

**Meal Prediction based on Continuous Glucose Monitor data** Dec 2019
Technologies: **Python, MATLAB**

- Developed an ML model to predict the meal intake of a patient suffering from Type 1 diabetes using CGM time-series data through classification and supervised clustering based on extracted features with an accuracy of 75%.

**Flow-based system design for IoT based systems: Graph semantic approach** July 2018 – May 2019
Technologies: **C++, Node.js, MongoDB, Node-Red, JSON, jQuery**

- Accomplished a simplistic design to represent the data flow inside an IoT network using **Node.js** in **MongoDB**. Devised a framework for storing of the data stream obtained from online sensors using **JSON** and **Data Lake technology**.

**Student Information System** Oct 2017- April 2018
Technologies: **HTML, CSS, JavaScript, Angular, PHP, MYSQL,**

- Designed a website for the institution using **HTML 5**, **CSS 3** and **JavaScript** where student information would be stored. Integrated the backend with **PHP** and **MYSQL** database from where results were retrieved upon queries [Project].

## ACADEMIC ACCOMPLISHMENTS

- Served as a **Teaching Assistant/Grader** for The Polytechnic School at ASU (IFT-100) Jan 2020–May 2020
- Receiving **Engineering Graduate Fellowship at ASU** for 2019-2021 for my extraordinary academic achievements.
- Completed and received a certificate from Inter-Institutional Inclusive Innovations Centre for **Smart India Hackathon 2018**. (Government of India).