Summer 2020 Internship Applicant

Ankush Kr. Mandal

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EDUCATION

Master of Computer Science (MCS), Arizona State University (3.72/4) May 2021
Bachelor of Technology (Dept. of CSE), National Institute of Technology Durgapur (~3.8/4) May 2019

SKILLS

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

PUBLICATIONS

- Kar, Pushpendu; Misra, Sudip; **Ankush Mandal**; Wang, Hao, "SecureIoT: Hop Count Based Service Oriented Efficient Security Solution for IoT", In the 24th Annual International Conference on Mobile Computing and Networking (**ACM Mobicom 2018 - SIGMOBILE**) on November 2, 2018.
- Misra, Sudip; Kar, Pushpendu; **Ankush Mandal**; Wang, Hao, "SHoSITe: A Service-Oriented Hop Count Aware Efficient Security Scheme for IoT Networks,"(submitted to **Transactions on Information Forensics and Security**).

WORK EXPERIENCE

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

- Developed and implemented an enhanced security scheme using Stackelberg Game theory and encryption algorithm. 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].

Kharagpur Winter of Code (KWOC), IIT Kharagpur Dec 2017

- Devised a **Graphical User Interface** with **Tkinter** and **Page** that encodes and decodes an image with the provided password.

ACADEMIC PROJECTS

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)**

- 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**).

Flow-based system design for IoT based systems: Graph semantic approach July 2018 – May 2019
Technologies: **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, 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].

City Probe: A city–scale pervasive sensing system, IMPRINT INDIA, MHRD Dec 2017

- Technologies**: Python (NumPy, Matplotlib)**
  Collected raw data for latitude and longitude of potholes in an area and plotted graphs using **Python** scripting and **matplotlib** to predict roadblocks, prevent road accidents by 20 % and make travelling at night safer in Durgapur.

ACADEMIC ACCOMPLISHMENTS

Serving as a **Teaching Assistant/Grader** for The Polytechnic School at ASU (IFT-100) (Jan 2020-)

Receiving **Engineering Graduate Fellowship at ASU** for 2019-2020 for my extraordinary academic achievements.

Mobile Computing and Network Group at NITD — **Teaching Assistant** (May 2017- Jan 2018)

Successfully completed and received a certificate from Inter Institutional Inclusive Innovations Centre for **Smart India Hackathon 2018**. (Government of India).