SHREYA SAHA

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EDUCATION

University of California, San Diego — ***September 2021-Present***
Master of Science in Computer Science — ***CGPA – 4.0***

National Institute of Technology, Durgapur, India — ***2015-2019***
Bachelor of Technology in Computer Science and Engineering — ***CGPA – 9.14/10***

RESEARCH PROJECTS

Title: Domain Adaptation Using Neural Architecture Search — ***2021- Present***
Advisor - Pengtao Xie

- Used a multi-level skill learn based optimization approach to decompose domain and class specific representations
- Used differentiable Neural Architecture Search methods (DARTS, P-DARTS and PC-DARTS) to train the architecture of the domain classifier
- Datasets being used - OfficeHome and Office31

Title: Visual Matrix Prediction — ***2022- Present***
Advisor - Pengtao Xie, Alireza Kamalipour

- Use Optic nerve head images of eyes to predict 10-2 and 24-2 visual matrix
- Best MAE score for 10-2 matrix: 3.01 and best correlation coefficient: 0.72
- Best MAE score for 24-2 matrix: 2.23 and best correlation coefficient: 0.69

Title: WBC BioMarkers Using BECC Analysis — ***2022- Present***
Advisor - Debashish Sahoo

- Performed BECC (Boolean Equivalent Correlated Clusters) Analysis on known White Blood Cell biomarker gene - PTPRC
- Found a set of seven biomarker genes for White Blood Cells, and proved via ROC-AUC analysis that the BECC analyzed genes are better from genes obtained via other methods such as correlation.

Title: Primer Design — ***2022- Present***
Advisor - Debashish Sahoo

- To overcome the drawbacks of primers obtained from current LAMP design platforms such as NEB LAMP and Primer Explorer such as self amplification
- Generating a database of all possible primers for a specific gene using common knowledge such as , temperature, dG, Gc and distance between individual primers
- Using ML models to predict if a suggested primer will succeed or fail before beginning experiments in a wet lab.

Title: PUF based Protocol for Secure WiFi Authentication of IoT devices — ***2017-2019***
Advisor - Bibhash Sen

- Used Physically Unclonable Functions(PUFs) to secure IoT devices against WiFi attacks via xor encryption of the challenge-response pairs of the PUF, MAC address of the connecting device and a random number nonce

ACADEMIC COURSE PROJECTS

Title: **Robot Motion Planner Using a Jetbot** — ***2021***

- Designed a 'roomba' like system using Voronoi path planner and KALMAN filter based SLAM techniques that would navigate through the environment using artificial landmarks (April tags).

Title: Python Compiler Using Typescript and WASM ***2022***

- Designed a python compiler that takes care of comprehension (lists, maps and tuples) statements
- Collaborated with 50 other students to integrate the above functionalities with other python expressions (namely lists, conditional expressions, built-in libraries and memory management)

Title: Emotional Text To Speech (TTS) ***2022***

- Designed a text to speech model that takes as input a text transcript and an emotion label, and outputs emotional speech
- Designed a LSTM based Speech Emotion Recognition model to predict speech emotion for baseline outputs and proposed model outputs
- Proposed model performed better than current baselines by 1.25%.

INTERNSHIPS AND PROFESSIONAL EXPERIENCE

Meta (Facebook)

Software Engineering Intern at Facebook Marketplace Intelligence ***June 2022 - September 2022***

- Part of the Facebook Marketplace Product Intelligence team
- Worked on investigating the causes for low quality data that leads to poor performance by ML models
- Created additional Artificial data to train the marketplace ML models

J P Morgan and Chase, Bengaluru, India

Software Developer I ***July 2019-December 2020***
Software Developer II ***January 2021- August 2021***

- Designed a CQRS framework that helped automate user requests without manual intervention using the axon framework
- Developed various microservices for the above framework and helped other teams onboard to this framework

Software Engineering Intern ***May 2018 -July 2018***

- Built an UI framework on top of Flower (a web based tool for monitoring Celery events) that visualized the various stages of a user task.

Revotic Engineering (Startup)

Software Engineering Intern ***October 2018-January 2019***

- Built a python REST API on top of ipfs.io which allows the user to perform various InterPlanetary File System (ipfs) functionalities
- Built a desktop application that allows the client to perform ipfs functions locally

Indian Institute of Technology, Bombay

Software Engineering Intern ***May 2017-July 2017***

- Built a platform (XBlock) to help teachers conduct online examinations, automatically grade the student's work and graphically display the student's performance.

PUBLICATIONS

- *Mahabub Hasan Mahalat, Shreya Saha, Anindan Mondal and Bibhash Sen,"A PUF based Light Weight Protocol for Secure WiFi Authentication of IoT devices",2018 Eighth International Symposium on Embedded Computing and System Design (ISED)*
- *Shachindra, Sagar Ganiga, Shreya Saha, Anish Mishra, Meit Maheshwari and Gaurv Kumar, "Secure and Decentralized Live Streaming using Blockchain and IPFS -Workshop",2019 ThirdWorkshop on Blockchain Technologies and its Applications*

TEACHING EXPERIENCE

University of California, San Diego
Teaching Assistant
Course - Advanced Data Structures (CSE 100) ***Spring 2022***
Course - Theory of Computation (CSE 105) ***Fall 2021, Fall 2022***

- Hold office hours and discussion sessions to clear doubts and discuss common problems and grade assignments