

Archana Swaminathan

Email | LinkedIn | GitHub

EXPERIENCE

V-SENSE, TRINITY COLLEGE DUBLIN | RESEARCH INTERN

May 2020 – Present | Dublin, Ireland

- Research and development of 3-D learning models based on the Kaolin Library released by NVidia.
- Working under the guidance of Prof. Aljosa Smolic in his team of 20+ researchers in the V-SENSE group, that works on extending Visual Sensation using Image-based Visual computing.

ROBERT BOSCH R&D | SUMMER RESEARCH INTERN

May 2019 – July 2019 | Bengaluru, India

- Worked on building Computer Vision algorithms for deployment of an end-to-end solution for product classification using very little training data.
- Used the principle of few shot learning and a custom Convolutional Neural Network architecture to achieve results.

NTCL WESTERN REGIONAL OFFICE | SUMMER INTERN

May 2018 – July 2018 | Mumbai, India

- Developed a forecasting and predicting model for the finance department of the company, as part of Practice School-1.
- Used Artificial Neural Networks and LSTM-based Recurrent Neural Networks to build a predictive model for time-series patterned data and compared the performance of the two.

PROJECTS

COMPRESSIVE IMAGE SENSING AND DENOISING USING RAMANUJAN TRANSFORMS

Jan 2020 – Apr 2020

- Used the Ramanujan Fourier Transform to do compressive sensing and denoising of images in the Ramanujan domain, using the Ramanujan basis as the overcomplete dictionary and trained the dictionary with K-SVD based on OMP algorithm.

STRUCTURAL DAMAGE DETECTION USING CONVNETS

Jan 2020 – May 2020

- Did Semantic Segmentation using a custom CNN architecture to identify tornado damage that was done to building structures.

CONTACTLESS GESTURE RECOGNITION SYSTEM USING PROXIMITY SENSORS

Aug 2019 - Nov 2019

- Built a custom proximity sensor using IR sensors that captures IR signals that recognizes the gestures left, right, push and pull by the means of a custom classification algorithm. An Arduino Uno microcontroller was used to do the programming.

DEEP LEARNING FOR IMAGE DECRYPTION

Jan 2019 - May 2019

- Developed a novel algorithm for image encryption using Artificial Neural Networks. Used a Product Neural Network to generate a unique key, which served as the bias for the initial ANN, which encrypted and decrypted the image.

EDUCATION

BITS PILANI, HYDERABAD CAMPUS

BE. (Hons) IN ELECTRONICS AND INSTRUMENTATION ENGINEERING |
MSc. (Hons) IN MATHEMATICS
Expected May 2021 | Hyderabad, India

SKILLS

PROGRAMMING

Python • C/C++ • MATLAB • R

TECHNOLOGY

Machine Learning • Deep Learning
Computer Vision • Artificial Intelligence
Image and Signal Processing • Statistics

COURSEWORK

UNDERGRADUATE

- Digital Image Processing
- Signals and Systems
- Applied Statistical Methods
- Data Structures and Algorithms
- Graphs and Networks
- Optimization
- Control Systems

ACTIVITIES

UNDERGRADUATE

- Student Representative, Disciplinary Committee
- Online Publicity Head for Verba Maximus, the Literary Fest
- Treasurer of the Journal Club
- Member of the English Language and Activities Society

LANGUAGES

English | Hindi | Tamil | Kannada