

Education

University of California, Los Angeles – GPA: 4.0/4.0

Mar 2021
(Expected)

Masters of Science, Electrical and Computer Engineering

Courses: *Computational Imaging, Matrix Analysis, FEAT in NLP(A+), Large Scale Data-Mining(A+), Neural Networks and Deep Learning(A+), Probabilistic Programming and Relational Learning(A+), NLP(A+).*

Indian Institute of Technology (IIT), Kanpur, India – GPA: 9.0/10

June 2019

Bachelor of Technology, Electrical Engineering (Minor: Machine Learning)

Courses: *Probability and Statistics, Data Structures and Algorithms, Convex Optimization, Digital Signal Processing, Wavelet Transforms, Machine Learning, Natural Language Processing, Probabilistic Modelling and Inference.*

Relevant Skills

Tools and Libraries: Github, **Tensorflow**, **PyTorch**, **Google Cloud**, Keras, Latex, sk-learn, Linux, Pandas, **Vim**, **Pyro**

Languages: **Python**, C/C++, Java, HTML, R(basic), SQL(basic), Prolog, MATLAB

Work Experience

Data Science Intern, Technology Development (R&D), Micron Technologies, Boise.

July 2020 - Present

Chemical Mechanical Planarization (CMP) Digital Twin for Material Removal Rate Specification

- Building a **physics-based data science** model to simulate the CMP process and get insight for product development.
- Targeting high accuracy and interpretability to build a prescriptive model using domain guided **feature engineering**.

Graduate Student Researcher, University of California, Los Angeles

Sept 2019 - Present

Fairness Metrics: A Comparative Analysis

- Derived **theoretical results** about compatibility among fairness metrics and commented on strategies for fair AI.
- **Paper submitted** at the 33rd Conference on Learning Theory (**COLT**) 2020 (pending review) to be held in Austria.
Equalized Odds Based Variational Fair Auto-Encoder
- Currently working to build and implement a **stacked VAE** in **PyTorch** for fair classification in criminal risk prediction.
- Using **semi-supervised** learning to develop an algorithm that retains **equalized odds fairness** without losing utility.

Viterbi Student Researcher, University of Southern California

May 2018 – July 2018

LORAKI: Reconstruction of Undersampled k-space Data using Scan-Specific Autocalibrated RNNs

- Modelled the Landweber iteration based data reconstruction algorithm as a novel **recurrent neural network** scheme.
- Achieved state of the art performances by simulating the scan-specific k-space algorithm in Python using **PyTorch**.
- Authored **work presented** at the Intl. Society for Magnetic Resonance in Medicine (**ISMRM**) conference in May 2019.

SURGE Fellow, Indian Institute of Technology (IIT), Kanpur

May 2017 – July 2017

Joint Mobile Sink Scheduling and Data Aggregation in Asynchronous WSNs using Q-Learning

- Modelled the sink planning problem as an **MDP** to simultaneously optimize data aggregation and increase network life.
- Simulated the results using a **Tensorflow** implementation on Python of neural network based **Q-learning** algorithm.
- **Published** work in the Proceedings of IEEE Conference on Acoustics, Speech and Signal Processing (**ICASSP**) 2018.

Workshops and Projects

Minesweeper using Probabilistic Programming

Apr 2020 – June 2020

Analysed the probabilistic structure of Minesweeper to build an AI solver using Probabilistic Programming Languages

Word Sense Disambiguation using GlossBERT and WordNet Graphs

Apr 2020 – June 2020

Built a novel algorithm to include WordNet graphs, gloss and context information for WSD achieving SoTA performance.

Motor Imagery Classification on the BCI dataset using Deep Learning

Jan 2020 – Mar 2020

Compared and implemented several DL algorithms like deep CNNs, FBCSP-GRUs and LSTMs for MI classification tasks.

Unrolled Optimization with Deep Priors for Image Denoising and Deblurring

Sept 2019 – Dec 2019

Implemented a Bayesian image deconvolution algorithm with deep **CNN priors** on Python using **TensorflowV2**.

Multiobjective Optimization using Pareto Descent and Multiple GD Algorithm

Feb 2019 - Apr 2019

Analysed and coded an algorithm in **Python** that returns a local pareto optimal point for different multiobjective functions.