

Education

Masters in Computer Science Johns Hopkins University Expected: May 2020

- *Research Assistant* (Spring '19), Prof. Joshua Vogelstein, Research area: *Stacked Convolutional Random Forests*.
- *Teaching Assistant* (Fall '18) for Object-Oriented Software Engineering.
- **Coursework:** AI, Machine Learning, Deep Learning, Parallel Programming, Neuro Data Design (CGPA: 3.95/4.0).

Bachelors in Computer Science Anna University May 2016

- **Thesis:** *Automated Scenario Description for Images* - built an image captioning algorithm using deep learning.

Experience

SDE Intern Amazon (AWS) Jun 2019 – Aug 2019

HPC Performance Benchmarking Framework

Manager: Linda Hedges (Principal SDM)

- Architected and built an extensible end-to-end automated framework, that creates HPC clusters globally across all 50 AWS availability zones; installs and runs various performance benchmarks; and retrieves, parses, stores, searches and visualizes the metrics over time, via an interactive dashboard. This uncovered significant performance degrades in specific AZs.
- Helped set up the Infosphere team in the High-Performance Computing org, from scratch, being the first-ever member.

Software Engineer Qube Cinema Technologies Jun 2016 – May 2018

iCount & Dispatcher

Manager: Rajesh Ramachandran (CTO)

- Designed and developed a 99% accurate, deep-learned, scalable viewer-demographics mining engine, using convolutional neural networks, to extract the count, age, & gender of the movie watchers from low-light images of a theatre's auditorium.
- Architected and built a real-time resource allocation and optimization algorithm for making logistical business decisions and maximizing profits intelligently, based on minimum cost flow (transportation) problem and pruned search trees.

Research Assistant Institute of Mathematical Sciences Dec 2015 - Dec 2017

Optical Character Recognition on Indus Scripts

Advisor: Prof. Ronojoy Adhikari

- Architected and implemented a deep-learned *optical character recognition engine* that can recognize the 417+ Indus script symbols from images of ancient Harappan civilization artifacts. The symbol classification module has an accuracy of 92%.
- Published this work as a research paper titled "*Deep Learning the Indus Script*", (arXiv:1702.00523v1). Moreover, this work was also published as news articles in *The Verge*, *The Hindu*, *Times of India*, and *SBS Radio - Australia*.

Data Scientist - Intern Serendio Inc. May 2015 - Jul 2015

DisKoveror - Text Analytics

Manager: Ravi Condamoor (CEO)

- Implemented a *universal multi-domain sentiment scorer* for text, that supports 36 domains and has an accuracy of 90%.
- Engineered a *topic modeling algorithm* using hierarchical k-means and semantic word clusters, with an accuracy of 80%.

Research Intern Carnegie Mellon University Nov 2014 - Dec 2014

Text-based Emotion Recognition System

Advisors: Prof. Bhiksha Raj & Prof. Rita Singh

- Built a 90.9% accurate emotion classifier (7 classes) for text, using histograms built over word2vec word/phrase clusters.

Projects

- **mgcpy**: Comprehensive high-dimensional independence and k-sample testing Python package. The code is being merged into SciPy and the *research paper* (arXiv:1907.02088) has been submitted to the Journal of Statistical Software.
- **Distributed Panorama Construction from High-Resolution UAV Images Using Public Compute Nodes**, Indian Space Research Organization (ISRO), Smart India Hackathon 2018. We won the 1st place in this nation-wide hackathon.
- **Universally Compatible and Accessible, Software Controlled, Expandable Home Automation Systems**: Paper: "*Home Automation Systems - A Study*" in IJCA (cited 41 times). Indian Patent Ref. ID: 5729/CHE/2015.

Skills

- **Languages:** Python, Java, R, C, C++, VB.Net
- **Libraries:** PyTorch, Caffe, Keras, OpenCV, Scikit-Learn, NumPy, SciPy, Matplotlib, Pandas, Flask, Dash, Gensim, NLTK
- **Others:** AWS, DynamoDB, Elasticsearch, Docker, Cython, Git, Unix, DevOps

Leadership & Achievements

- **Merit Scholarship** (Full), for *Excellence in Academics*, worth Rs.105,000, SSN CE, Anna University.
- **Government of India, Industry Mentor**, for 2 consecutive years at the *Smart India Hackathon* (world's largest).
- **Association for Computing Machinery (ACM)**, *Chairman* (2015-16), *Treasurer & Tech Lead* (2014-15), SSN CE.