

EDUCATION

UNIVERSITY OF IOWA MASTER OF COMPUTER SCIENCE (MCS)

MAY 2021

GRINNELL COLLEGE BA IN COMPUTER SCIENCE

MAY 2020

CONCENTRATIONS IN NEUROSCIENCE AND STATISTICS

MAJOR GPA: 3.78/4 - DEAN'S LIST

AQUINCUM INSTITUTE OF TECHNOLOGY (AIT) BUDAPEST, HUNGARY

STUDY ABROAD, FALL 2018

Selected Coursework: Machine Learning, Computer Vision, VR, HPC, Dependable System Design, Decision Making Psychology
Teaching Assistant: CSC:161(Imperative), CS:2210(Discrete), CS:2230(Algorithms), MAT:209(Apl. Stat), MAT:310(Stat Modeling)
Programming skills: Python, Java, C, C#, JavaScript (ES6), Swift, CSS/Saas, Ruby, SQL, R, MATLAB, Git, Kotlin, Scheme
Frameworks: Tensorflow, Keras, PyTorch, OpenCV, SciPy, AWS, React, Material-UI, Rails, PostgreSQL, MySQL

PROGRAMMING AND TECHNICAL EXPERIENCE

RESEARCH ASSISTANT | UNIVERSITY OF IOWA - IOWA CITY, IA

AUGUST 2020 – MAY 2020

Worked with Dr. Guanpeng Li to investigate the vulnerability of DNNs to transient errors during training in autonomous systems.

- Designed and implemented a custom fault injection framework using PyTorch to inject silent errors into DNNs during training.
- Improved search for SDC-causing inputs by over 30% using Deep Q-Learning and genetic algorithms resulting in 17X speedup.
- Redesigned the entire experimental setup to reduce running time from over 240 minutes to under 20 minutes per experiment.

ENGINEERING INTERN - FULL-STACK/AI | SNAPPANALYTICS - PALO ALTO, CA

JUNE - AUGUST 2020

- Prototyped an interactive B2B/B2C web application to improve campaign performance and increase customer conversion.
- Created over 15 React components with ReCharts, D3.js and Material-UI that support interactive data visualizations.
- Developed multiple automated end-to-end client-configurable ML pipelines on AWS (Elastic Map Reduce with Spark, Lambda and DynamoDB) to identify customer personas, forecast performance, predict churn and identify new potential customers.
- Increased product sentiment analysis accuracy by 21% by using pre-trained Transformer Networks (XLNet).

RESEARCH ASSISTANT | GRINNELL COLLEGE - GRINNELL, IA

MAY - AUGUST 2019

- Designed and engineered a fully automated, semi-supervised deep information theoretic framework, called AlignNet, for automatic georeferencing of historical maps with modern vector coordinates.
- Wrote a highly configurable, dynamic training data generator in Python that builds a theoretically infinite data set.
- Implemented a U-Net Convolutional Neural Network (CNN) using a DenseNet backbone for feature extraction in Tensorflow.
- Used bilinear interpolation and SciPy's optimizer to optimize affine alignment parameters.

iOS DEVELOPER AND UX DESIGNER | APPDEV - GRINNELL, IA

JAN 2018 – JUNE 2019

Community-based mobile application development group with \$150k+ in funding

- Designed and implemented internal student Publications, Directory and Events iOS applications used daily by 1000+ people.
- Increased weekly readership for Publications by 17% by personalizing individual's newsfeed using LDA topic modeling.

SOFTWARE ENGINEERING INTERN | QUANTUMFIG - NAIROBI, KENYA

JUNE – AUG 2018

A startup that develops custom data and software solutions for clients

- Implemented a system for automated stock ordering based on current and historical trends using Python.
- Automated over 40% of customer support queries by delivering a chat-bot embedded within an iOS application that uses Natural Language Processing (NLP) to respond to frequently asked questions using Python, Api.ai and NodeJS.

PUBLICATIONS

B. Shan, **A. Shamji**, J. Tian, G. Li, and D. Tao. LCFI: A Fault Injection Tool for Studying Lossy Compression Error Propagation in HPC Programs. 2020 International Workshop on Big Data Reduction at the IEEE International Conference on Big Data, Dec 2020.

N. Howe, J. Weinman, J. Gouwar and **A. Shamji**. Part-Structured Models for Automatically Georeferencing Historical Map Images. 2019 ACM SIGSPATIAL Conference, October 2019.

PROJECTS

CoviDNN: Investigating transfer learning for classification of COVID-19 associated pneumonia in chest X-Ray images using Keras.
Deep Style Transfer: Deep learning style transfer with Tensorflow and SciPy using a pre-trained VGG16 and a custom loss function.
Blockchain: A Java program that verifies and logs transactions between two individuals and immutably stores them as a blockchain.
Scuba Log: A Rails application that can be used as an online personal scuba diving log with a PostgreSQL database.