

Abhishek Vijayakumar

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LINKS

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EDUCATION

CARNEGIE MELLON UNIVERSITY
BS IN AI/CS

4.00 / 4.00 | Aug 2019 - May 2023

UNIVERSITY OF MINNESOTA

DUAL ENROLLMENT

4.00 / 4.00 | Aug 2014 - May 2019

SKILLS

PYTHON

scikit-learn, Keras, PyTorch, XGBoost
 spaCy, NLTK, Gensim
 NumPy, Pandas, matplotlib, seaborn
 Flask, BS4

WEB

React, AngularJS
 JavaScript, TypeScript, HTML, CSS

OTHER

C, Rust, SML, R, MySQL
 \LaTeX , GCP, Cordova, Agile

SELECTED COURSEWORK

Artificial Intelligence
 Machine Learning
 Modern Regression
 Computer Vision
 Natural Language Processing
 Computational Forensics & AI
 Constructive Logic
 Computer Systems
 Algorithm Design and Analysis

PUBLICATIONS

- [1] T. Byun, V. Sharma, A. Vijayakumar, S. Rayadurgam, and D. Cofer. Input prioritization for testing neural networks. In *2019 IEEE International Conference On Artificial Intelligence Testing (AITest)*, pages 63–70, 2019.
- [2] T. Byun, A. Vijayakumar, S. Rayadurgam, and D. Cofer. Manifold-based test generation for image classifiers. In *2020 IEEE International Conference On Artificial Intelligence Testing (AITest)*, pages 15–22, 2020.

EXPERIENCE

DATA SCIENCE INTERN | VERIZON - SYSTEM PERFORMANCE

Jun 2021 - Aug 2021

- Created machine learning models to determine causes of poor handovers.
- Analyzed network parameters to identify impacts of tunable parameters.

TA | FUNCTIONAL PROGRAMMING, MACHINE LEARNING

Jan 2021 - Present

- Taught recitation sections of up to 30 people.
- Developed new course assignment content.

CMU REU | VERDANT: COMPUTATIONAL NOTEBOOK VERSIONING

May 2020 - Jul 2020

- Developed a JupyterLab extension in React/Redux and TypeScript.
- Developed a pipeline to classify chart images.

CMU INDEPENDENT STUDY | AI-ASSISTED USER RESEARCH TOOLS

Jan 2020 - May 2020

- Developed a pipeline for summarizing research interview data and comparing textual data to find outliers.

UMN RESEARCH INTERN | ARCHITECTURE AND ANALYSIS FOR HIGH-ASSURANCE AUTONOMY

Sep 2018 - Aug 2019

- Developed methods of test generation for neural networks using VAEs.
- Empirically analyzed input prioritization methods for lowering the cost of labeling neural network test data.
- Wrote interfaces and automated data collection tools for X-Plane 11.

SELECTED PROJECTS

COMPUTATIONAL LITERATURE | BLOG SERIES

- Wrote an ongoing series of blog posts applying NLP techniques to extract linguistic and literary insights from prose.

LU PARTITION | PRINCETON GERRYMANDERING PROJECT

- Implemented algorithms for use in automatic generation of district maps.

QA-QG SYSTEM | NLP SEMESTER PROJECT

- Designed and built an end-to-end system to generate and answer questions on the text of Wikipedia articles.
- Worked with spaCy, NLTK, and BERT technologies.

RECIPE DELTA | HACKCMU PROJECT

- Developed a web application to suggest online recipes requiring minimal extra ingredients beyond those on hand.

EDUPASS | STARTUP

- Designed and built a cross-platform application to track student attendance and analyze activity during flexible hours.
- As CTO, established Agile process in the team.
- Worked with overseas development team and schools to coordinate deployments and enhancements.
- Developed AngularJS and Cordova frontends with LAMP backend.