

Abhishek Vijayakumar

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LINKS

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EDUCATION

CARNEGIE MELLON UNIVERSITY
BS IN AI/CS, MS IN ML

4.00 / 4.00 | Aug 2019 - Dec 2023

UNIVERSITY OF MINNESOTA
DUAL ENROLLMENT

4.00 / 4.00 | Aug 2014 - May 2019

SKILLS

PYTHON

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

OTHER

C/C++/CUDA, Rust
Web Dev, SML, R, MySQL
L^AT_EX, GCP, Cordova, Agile

SELECTED COURSEWORK

AI, ML, Regression, Deep Learning
CV, NLP, Speech Processing
Computational Forensics & AI
Constructive Logic
Convex Optimization
Parallel Computer Architecture
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

TEACHING ASSISTANT | INTRODUCTION TO MACHINE LEARNING, PRINCIPLES OF FUNCTIONAL PROGRAMMING

Jan 2021 - Present

- Taught recitation sections of up to 250 people.
- Hosted office hours with one-on-one and small group assistance.
- Wrote course assignments and exams.

META INTERN | SOFTWARE ENGINEER - FAIAR

May 2022 - Aug 2022

- Worked on applied research for ads supply sensitivity modeling.
- Implemented and analyzed traditional and novel meta learner model variants for causal inference using LightGBM and XGBoost ensembles.
- Produced significant improvements in model performance, model stability, and model training cost.
- Developed, advocated for, and implemented new methods of uplift model evaluation in a causal inference setting.
- Performed white-box model analysis using SHAP and advocated for new methods of feature evaluation.

CMU LTI RESEARCH | CODE-SWITCHED NLP

Sep 2021 - May 2022

- Evaluated methods of generating multilingual code-switched text.
- Developed a Devanagari transliteration model reflecting modern Hindi practices.
- Identified issues and proposed solutions in standard code-switched text evaluation GLUECoS.

VERIZON INTERN | DATA SCIENCE - 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.

CMU HCII RESEARCH | AI UX TOOLS, VERDANT

Jan 2020 - Aug 2020

- Developed a pipeline for summarizing research interview data and comparing textual data to find outliers.
- Developed a JupyterLab extension in React/Redux and TypeScript.
- Developed a pipeline to classify chart images.

PROJECTS

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.

LU PARTITION | PRINCETON GERRYMANDERING PROJECT

- Implemented algorithms for use in automatic generation of district maps.
- Implemented various algorithm parallelization strategies in C++ and evaluated performance.