

David Matthew Viggiano

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EDUCATION

University of Wisconsin-Madison

Madison, WI

Intended Degree: Bachelor of Science, Computer Sciences and Philosophy (Honors)

May 2024

Cumulative GPA: 3.73

Applicable Coursework: Object-Oriented Programming, Data Structures and Algorithms, Systems Programming, Database Management Systems, Artificial Intelligence, Virtual Reality, Data Science Programming (II), Business Analytics (II), Applied Statistics, Human Factors, Marketing Management, Game Design

Honors Thesis (in progress): On Novel Idea Generation in Large Language Models • Undergraduate Peer Mentor for COMP SCI 577: Introduction to Algorithms

Technical Skills

Programming Languages: Java, Python, HTML, CSS, JavaScript, TypeScript, C/C++, C#, SQL

Frameworks & Technologies: Git, Firebase, Angular, React, React Native, NumPy, Pandas, Flask, Scikit-Learn, PyTorch, Express.js, Unity, Postman, Google Cloud Platform

WORK EXPERIENCE

Dell Technologies

Round Rock, TX

Software Engineer Intern

May 2023-August 2023

- Built a micro front-end (MFE) application in Angular to provide a tool to record sessions and log issues within a web application with over 28,000 active users
- Added routes within ASP.NET-based REST APIs to create Jira defects from MFE, reducing defect creation time by over 3x for team of over 400 developers
- Collaborated and coordinated efforts with 3 other feature teams to ensure a uniform architecture and seamless integration into primary application
- Reached finals for intern team hackathon by prototyping and presenting a solution to evaluate effectiveness of training programs across IT organization

Presales Solutions Architect Intern

June 2022-August 2022

- Designed, presented, and defended a hyper-converged solution to transform an enterprise-tier business's infrastructure for team case study project
- Learned fundamentals of data centers, networking, cloud computing, and cybersecurity to pass Information Storage and Management exam
- Researched customer values and social impact initiatives and presented findings to client executives to identify a potential customer fit

UW Center for Sleep and Consciousness

Madison, WI

Software Developer and Research Intern

August 2022-Present

- Contribute to the development of the latest iteration of PyPhi, a Python library used for computations in Integrated Information Theory, a theory of consciousness
- Established familiarity with codebase by debugging and writing unit and end-to-end tests to increase code coverage by 8%
- Leveraged Python metaprogramming capabilities to co-engineer a NumPy array wrapper to represent an input matrix and encapsulate regular operations
- Supported research team by adapting network visualization module to match Integrated Information Theory 4.0 for use in upcoming publications

EXTRACURRICULAR ACTIVITIES

Effective Altruism UW-Madison

Madison, WI

Leadership Team Member for Wisconsin AI Safety Initiative (child organization)

January 2023-Present

- Strategized outreach to professors to conduct presentations on related topics to attract students to a new club rooted in an exponentially growing cause area
- Coordinated web development team of four students to design, develop, and maintain club website using Next.js, hosted at <https://waisi.org>
- Currently devising technical projects and according programs for members to upskill in AI alignment engineering and interpretability

Technology Team Member

April 2021-December 2022

- Joined the leadership team amidst launch phase and co-organized tasks for event programming and recruitment initiatives to help grow club to over 200 members
- Supported website by implementing spam protection and developing a REST API to replace Zapier automations and reduce costs by \$19.99/month
- Handled Firebase integrations and built components for a React-based web application for providing real-time lecture feedback among team of 4 students

UW-Madison Information Systems Society

Madison, WI

President (shadowed in Spring 2022)

January 2022-May 2023

- Led organization and programming of town hall meetings, social events, and speaker panels related to careers in technology for over 150 active members
- Redefined club vision by introducing socially oriented events including résumé workshops and career treks to increase new member engagement
- Managed executive board by overseeing and delegating responsibilities to ensure smooth and consistent club operations
- Coordinated events with employers and alumni to engage members with workforce and develop meaningful relationships with industry partners and recruiters

PERSONAL PROGRAMMING PROJECTS

Maze Factory

<https://apps.apple.com/us/app/maze-factory/id6451072154> • <https://github.com/dviggiano/maze-factory>

TypeScript, React Native, Firebase, Google Cloud Platform

- Mobile application rated 4.4/5 stars on iOS App Store for building, sharing, and creating mazes with a global ranking system based on solve time records
- Designed an original efficient algorithm to generate any possible random maze based on randomly adding edges amidst a depth-first traversal
- Leveraged services including cloud functions and the OpenAI API to isolate database operations and filter user-generated content

Notation [work in progress]

<https://github.com/dviggiano/notation>

Python, Flask

- REST API for interfacing with a music recommendation engine prototype that clusters songs purely based on musical features
- Applied a Fast Fourier Transform (FFT) to convert single-instrument MP3 files into note sequences to engineer features for k-nearest neighbors model
- Working to evaluate user preferences based on mock listening session data and accordingly recommend songs

Web Safari

<https://safari.dviggiano.com>

HTML, Bulma, JavaScript, Firebase

- Single-page web application allowing users to identify zoos across the midwest that feature particular sets of animals, write zoo reviews, and learn about animals
- Serves as example project for Wisconsin School of Business introductory web development course for three semesters and counting

CERTIFICATIONS, ACHIEVEMENTS, & INTERESTS

Dell Technologies Information Storage and Management Certified Associate (v5.0) • Triplebyte Timed Coding Expert • HERA Foundations in Data and AI Badge

Wisconsin School of Business Excel Proficiency Badge • Glen Rock High School Class of 2020 Citizenship Award

Interests & Hobbies: Electronic Music, Sandbox & Strategy Games, Fantasy Football, Bowling, Science Fiction, Cooking