Varun Balan

U.S. Citizen

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Education

University of Wisconsin-Madison Sep 2020 – May 2024
Double Major – B.S. Computer Engineering and Computer Sciences GPA: 3.98

- College of Engineering Dean's Honors List (Fall 2020, Spring 2021, Fall 2021, Spring 2022)
- Relevant Coursework: Data Structures and Algorithms, Microprocessor Systems, Discrete Math, Linear Algebra, Computer Graphics, Digital System Design and Synthesis

Work Experience

Software Engineering Intern May 2022 – Aug 2022
Raven Software – Studio of Activision Blizzard developing and maintaining games from the Call of Duty franchise Middleton, WI

- Debugged code in C++, XML, and Lua to close over 20 Jira tickets addressing live, time-sensitive UI bugs in Call of Duty: Warzone.
- Developed 6 new UI widgets for an upcoming season update in Warzone.
- Communicated and collaborated with engineers and UI designers across Activision's studios as part of SCRUM activities.

Data Science Intern Jun 2019 – Aug 2019
Think360.ai – Data science company offering an alternate credit score for financial institutions Mumbai, India

- Developed a data visualization application with Python for the data analytics team. Transformed data from AWS S3 and used SQL to allow filtering. The application enabled the analytics team to present findings aided with visualizations.
- Assisted in an investigation determining variable importance in a growing database. Implemented a logistic regression model and used statistical analysis with Python and R to identify key variables influencing the model. Led to ~30% reduced storage and cost savings.

Research Experience

Research Assistant Jan 2022 – Present
University of Wisconsin-Madison – Part of Wisconsin Electrical Machines and Power Electronics Consortium (WEMPEC) Madison, WI

- Designed printed circuit boards with Altium Designer to add charging capabilities to Little Free Library community book-sharing boxes.
- Developed libraries for WEMPEC in C++, MATLAB, and Julia to transfer data from microcontrollers to an IoT platform with API requests.
- Assisting a Ph.D. student in their research developing a solution to provide reliable, low-cost electricity to communities.

Research Assistant Sep 2021 – Dec 2021
University of Wisconsin-Madison – Nanotechnology lab in the Biomedical Engineering department Madison, WI

- Analyzed data from spectroscopic scans of brain tissue and produced models with Python's numpy and MATLAB.
- Performed image registration with OpenCV (computer vision tool) to compare results after experimentation on tissue samples.

Projects

SimplyFit Workout Tracker App – A full-stack web application allowing users to log gym workouts Summer 2021

- Designed a mobile-responsive user interface with React, HTML, CSS, and Bootstrap.
- Users can add, edit, and delete workouts, interfacing with a REST API backend, which updates a MongoDB database.
- Set up authentication into the app using Google OAuth and JSON Web Token.

Skills

Languages

- Java, Python, C, C++, JavaScript, HTML, CSS, MATLAB, R, SQL, Julia, Bash, Lua
- x86 assembly, Verilog

Frameworks and Tools

- Data Science / Machine Learning: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Scikit-Learn, OpenCV
- Database: MongoDB, PostgreSQL
- Web Development: React.js, Node.js, Express.js, Redux.js, Bootstrap
- Engineering: Altium Designer, Adobe Illustrator
- Cloud Services: Amazon Web Services (AWS), Heroku
- Development: Jupyter Notebooks, Visual Studio, Jira, Perforce, Markdown, LaTeX, git
- Operating Systems: Linux, FreeRTOS

GitHub: https://github.com/varun-balan
LinkedIn: https://www.linkedin.com/in/varunbalan/
Portfolio: https://www.varunbalan.com