Erik Pfeffer

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Education

University of Maryland College Park, MD
Bachelor of Science in Computer Science, Minor in Statistics *Expected May 2025*
GPA: 3.814/4.000

Relevant Coursework
Programming: Object-Oriented Programming, Advanced Data Structures & Algorithms, Computer Networks, Parallel Computing.
Maths/Stats: Applied Probability & Statistics, SAS, Sampling Theory, Multivariate Calculus, Linear Algebra.

Experience

Software Engineer Aug. 2024 – Present
Hack4Impact-UMD *College Park, MD*
- Engineering a resource hub for SHAPE America to streamline communication and resource access for **200,000+** members, implementing a complex database and survey analysis system.
- Developing full-stack web applications for nonprofit organizations using technologies such as TypeScript, React.js, Node.js, and MongoDB to improve their operational efficiency and digital presence.
- Collaborating with cross-functional teams including designers and product managers to gather requirements, design features, and deliver high-quality software solutions tailored to the specific needs of nonprofit clients.

Data Science Intern May 2024 – Aug. 2024
John Hancock Investment Management *Boston, MA*
- Identified **16** new high-potential advisors and forecasted their future sales activity using a neural network model in PyTorch to enhance wholesaler/advisor pre-meeting intelligence with data-driven decisions.
- Automated the creation of smart lists and triggers for product marketing campaigns targeting key advisors, employing natural language processing techniques in Python to reduce manual effort by **several weeks**.
- Assisted in the development of advanced Power BI dashboards by writing efficient DAX expressions, transforming complex and big data from a MySQL Server database into insightful and actionable visualizations.

Software Engineering Researcher May 2024 – Present
University of Maryland *College Park, MD*
- Conducting research to explore the feasibility of using Haskell's QuickCheck for generating verifiably correct programs through property-based & unit testing concepts, contributing to the field of software engineering and formal verification.
- Developed a parser and evaluator for a miniature version of Dafny using Haskell, and integrated the Z3 SMT solver to facilitate the analysis and verification of program correctness.

Executive Board Secretary Dec. 2023 – Present
Sigma Phi Delta - Professional Computer Science & Engineering Fraternity *College Park, MD*
- Engineered and deployed an automated attendance system using Next.js for the fraternity, efficiently managing and tracking data from **60+ weekly users**.
- Established and sustained a proactive line of communication with the fraternity's national office as part of the leadership team, providing timely and accurate reporting on chapter activities, membership updates, and compliance matters.

Software Developer Intern May 2023 – Aug. 2023
Voya Financial *Remote*
- Developed Python scripts to optimize financial close processes, resulting in a **12% reduction** in the time required to complete month-end close activities.
- Reduced manual data entry errors by implementing automated data validation checks and error-handling mechanisms.
- Implemented best practices for code maintainability in an Agile development environment, including modular design, thorough documentation, and version control using Git.

Projects

NutriGuard - Food Ingredient Analyzer | *Next.js, React.js, TypeScript, MongoDB, OpenAI API*
- Developed a full-stack application that enables users to upload photos, documents, or input text to analyze food ingredients for potential harmful substances.
- Integrated Tesseract.js for image/document processing and utilized the OpenAI API for ingredient filtering and information retrieval. View Here

Technical Skills

Languages: HTML5/CSS3, JavaScript, TypeScript, Python, Java, C/C++, OCaml, Haskell, SQL, R, CUDA, Charm++
Frameworks/Dev Tools: Git, Bash, React.js, Next.js, Linux, MongoDB, Docker, OpenMP, MPI, High-Performance Computing