Jonathan Perkins

Full Stack Software Engineer

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EXPERIENCE

Software Engineer (Full Stack) at *Parsons Corporation* **Jan 2025 – Present**

- Designed and built a full stack web application with Oauth and JWT authentication allowing users and admins to configure and visualize CNN and transformer neural network optimization engine pipelines
- Led development of high-performance Python REST APIs for user auth, task ordering, and async metrics shared over 24 HTTP endpoints on a FastAPI ASGI server handling hundreds of concurrent JSON requests
- Researched UI/UX methods for providing intuitive visualizations of model subnet generation via Neural Architecture Search and created a user dashboard with TypeScript, React, Vite, TanStack, and Tailwind CSS
- Refactored method of creating objects from over 40 classes, removing the need for the API layer to be frequently updated and reducing time taken to make improvements to modules by more than 50%
- Wrote automated tests, SQL schemas, Dockerfiles, and docs, simplifying code review and deployment

Software Developer (Intelligence Analyst II) at *Queen Associates, Inc.* **Oct 2023 – Jan 2025**

- Automated retrieval and analysis of 25+ TB of leaked data across multiple Linux VMs, allowing for resident analysts to retrieve and examine 200 times more data than was initially possible in requested time frames
- Built and improved custom web scraping and OSINT tools in Python, Bash, VBA, and JavaScript according to specific needs of analysts, increasing team's overall efficiency of sensitive financial data retrieval by 35%
- Analyzed 3 million leaked files, crafted dozens of SQL queries, created 90+ graphics in Python and Data Studio, wrote 48 technical reports, and collaborated in weekly presentations given to Fortune 500 clients

Machine Learning Researcher at the *University of Alabama at Birmingham* **Aug 2022 – Dec 2024**

- Trained, validated, and benchmarked over 100 variational autoencoder deep neural networks in Pytorch for spectral and image feature detection; created and presented 120+ figures detailing model accuracy
- Demonstrated effective methods of removing 100% of cosmic rays and 92% of background noise from dense, hyperspectral HDF5 data, providing researchers with more accurate analysis of energy materials

Data Scientist Intern at the *National Science Foundation (NSF)* **May 2023 – Aug 2023**

- Trained 45 PCA and NMF unsupervised ML models in Python and tested 31 signal processing filters to obtain parts-based representations of noisy spectroscopic data, greatly improving accuracy of analysis
- Discovered locations of and environmental causes of photovoltaic (solar cell) material degradation

PROJECTS

Full Stack Website **foureyedbutterfly.com**

CRUD app built with JavaScript, React, Vite, Sass CSS, Node.js, Express.js, Axios, MySQL, credential encryption, and token-based user authentication; deployed on a DigitalOcean Ubuntu VM with an Nginx reverse-proxy server

Portfolio Website **jayandsparrow.com**

Web app created using Next.js, React, TypeScript, Framer Motion, and Tailwind CSS; deployed on Vercel

SKILLS

- Programming languages: Python, JavaScript, TypeScript, HTML, CSS, MATLAB, R, C/C++, Java, SQL
- Technologies: React, Node, Express.js, Next.js, Redux, Material UI, FastAPI, Django, Webpack, PostgreSQL, MySQL, SQLite, ORMs, APIs, Excel, AWS, Vercel, web hosting, HPC, CI/CD, GitLab, SDLC, unit testing, Agile, Scrum, Jira, Git, Docker, Bash, GNU utils, Numpy, Pandas, Sci-kit learn, Pytorch, TensorFlow, OpenCV
- Spoken languages: English, Spanish, Portuguese, French; some Italian and Mandarin Chinese

EDUCATION

Bachelor of Science in Computational Physics at the *University of Alabama at Birmingham* **2022 – 2024**

- **3.75 GPA;** minors in Computer and Information Sciences and Mathematics
- Relevant coursework: OOP, algorithms and data structures, applied machine learning, computer vision
- Honors: NASA Alabama Space Grant Consortium scholarship, SPS, honors society, magna cum laude