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-based authentication allowing users and admins to configure and visualize CNN and transformer neural network optimization engine pipelines
- Architected a user dashboard using TypeScript, React, Vite, and Redux to provide users with real-time data
- Led development of scalable REST APIs in Python for user auth, task ordering, and performance metrics shared over 24 HTTP endpoints on a FastAPI ASGI server handling hundreds of concurrent JSON requests
- Refactored internal APIs, reducing time taken to develop and maintain the engine's functionality by over 50%
- Researched UI/UX methods for intuitive visualizations of Neural Architecture Search and model optimization
- Wrote automated test suites, maintained a Docker and Kubernetes containerization ecosystem, and built a CI/CD pipeline in GitLab, simplifying development and deployment and increasing team efficiency by 20%

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 (Looker), wrote 48 technical reports, and gave semi-weekly presentations to Fortune 500 clients

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

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 98% of background noise from dense, hyperspectral HDF5 data, providing researchers with more accurate analysis of energy materials

PROJECTS

Full Stack Website (Blog) **foureyedbutterfly.com**

CRUD application built with JavaScript, React, Vite, Sass CSS, Node.js, Express, 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 application 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, Vue.js, Node, Next.js, Nuxt, Express, Redux, Webpack, FastAPI, Django, RESTful APIs, TCP/IP, JSON, XML, PostgreSQL, MySQL, SQLite, MongoDB, ORMs, AWS, Excel, CI/CD, DevOps, GitLab, SDLC, unit testing, Jest, Agile, Scrum, Jira, Git, Docker, Kubernetes, Bash, GNU utils, Pandas, Pytorch, TensorFlow
- Spoken languages: English, Spanish, Portuguese, French; some Italian, Arabic, 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