Jaydon Bingham

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Virginia Tech **August 2022 - May 2026**

B.S. in Computer Science, Minor in Mathematics *GPA: 3.99, President's List*

Coursework: Computer Systems, Data Structures and Algorithms, Machine Learning, Cloud Software (AWS), Web Development

Organizations: CodePath, SHPE, SASE, VT BURGs, Odysseus Academic, Poker Club, Student Success Center

WORK EXPERIENCE

Google | *Software Engineering Intern* | *San Francisco, CA* **May 2025 - Aug 2025**

- Enabled 10K+ leaders at Google to make data-driven decisions by deploying AI infrastructure that surfaced research insights
- Built an AI agent with search and retrieval tools that extracts user artifacts (quotes, metrics, context) from varied documents
- Engineered a parallelized data pipeline processing ~20K research documents, generating embeddings for artifact searching
- Designed and prototyped a workspace add-on for surfacing user artifacts that smoothly integrates into existing workflows
- Launched this UI/UX to drive interest in upcoming launches, delivering artifacts to leadership and driving internal decisions
- Architected shared infrastructure for team products — an embeddings database and MCP server — to improve system health

Virginia Tech LLM Operations Team | *Research Team Lead* | *Blacksburg, VA* **August 2023 - May 2025**

- Implemented a full stack feature with Next.js, Flask, and Server-Side Events to livestream descriptions to the CSGenome site
- Created a LLM wrapper for generating and storing hardware descriptions using LangChain, CSGAPI, and SQLAlchemy
- Crafted UI/UX enabling users to generate descriptions, watch live content, track queue position, and view content scores
- Led a team of 6 researchers through the successful completion of semester-long tasks by employing a Scrum methodology

Verisign | *Software Engineering Intern* | *Reston, VA* **May 2024 - August 2024**

- Preprocessed 50K diverse files (HTML, CPP, XML) from company codebases to create structured datasets for LLM usage
- Fine-tuned base and instruct LLM models using QLoRA methodology — incorporating supervised, unsupervised, and Odds Ratio Preference Optimization (ORPO) fine-tuning — after testing initial performance with diverse token prediction methods
- Recorded the process in Jupyter notebooks (~10K lines), and boosted accuracy with Retrieval-Augmented Generation (RAG)
- Presented the finished model and process to 200+ company-wide attendees to encourage adoption of customized LLMs

Kratos Defense & Security Solutions | *Software Engineering Intern* | *Colorado Springs, CO* **June 2023 - August 2023**

- Employed SIMD software to optimize the PM receiver on AVX512 machines, resulting in a 40% reduction in CPU usage
  - Optimized similar features, and utilized Google test to create testing architecture for these features
- Researched Multipath Fading and utilized Python and C to demo and then integrate a novel fading feature into the product

PROJECTS

Odysseus Academic | Next.js, Python, PostgreSQL, Azure | odyadvisor.com

- Served an app displaying detailed class and instructor data (GPA, prerequisites, ratings) to ~3,000 unique users with Azure
- Standardized complex, inconsistent course data to build a navigable graph of prerequisites and dependencies for 8.5K courses
- Algorithmically matched 9K instructors to 160K sections, boosting data quality by resolving disparities from several sources
- Designed a PostgreSQL database with Docker to manage courses, instructors, and sections for seamless data integration
- Composed web pages to display historical content, and drafted a Go based API to streamline data access and management

Handwriting Classifier | Python/Jupyter Notebooks

- Engineered a convolutional neural network (CNN) in PyTorch that classifies alphanumeric characters with 92% accuracy
- Validated CNN performance against hyperparameter-tuned K-Nearest Neighbors, Random Forest, and Naive Bayes models
- Corrected classifier errors with English dictionaries and SymSpell in a post-processing pipeline, boosting word accuracy 5%

LEADERSHIP EXPERIENCES

Virginia Tech Student Success Center | *Peer Academic Coach* | *Blacksburg, VA* **August 2023 - August 2024**

- Coached 20+ students through academic and personal hurdles, brainstorming specific solutions through effective mentoring
- Led 8 seminars to 50+ students on time management, procrastination, note-taking, and other academic and life skills

CodePath | *Tech Fellow* | *Remote* **December 2023 - May 2024**

- Provided guidance and explanations on various React.js concepts such as async/await, useEffect, etc. for 200+ students
- Developed and demoed 16 React.js coding projects involving CRUD operations, API usage, and deployment
  - Assisted 24 students on their own respective projects by aiding debugging and clearing misunderstandings

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Kotlin, Java, JavaScript, TypeScript, Go, Rust, HTML/CSS, SQL, RISC-V Assembly

Technologies: Node.js, Next.js, FastAPI, Flask, CUDA, PyTorch, TensorFlow, HuggingFace, Unix/Linux, JupyterLab, AWS, Docker, Git

Concepts: Artificial Intelligence, Agile, Web Development, Agentic AI, Test-Driven Development, Cloud Development, Backend