

# Aspen Johnson

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## EDUCATION

### Valdosta State University

*B.S in Data Science: Computational Science and Engineering Track*  
Minors: Physics, and Mathematics

Expected: 2027, GPA: N/A

### Palm Beach State

*A.A in STEM: Mechanical/ Aerospace Engineering Track*

Expected: Summer 2026, GPA: 3.5

## PUBLICATIONS

### An empirical application of improved gradient scaling for score-driven volatility filters

- In Collaboration with Szabolcs Blaszek and Adam Kobor; Conducted at Mercer University.

## EXPERIENCE

### Econometrics Researcher

Jan 2025 – Dec 2025

*Mercer University*

On-Site/Remote

- Giving humanoids intelligence through hierarchical System-1/System-2 control.
- Adapting LLM agent-based planning with robot APIs to orchestrate full-body humanoid control.
- Combining policy-based locomotion controllers with VLA manipulation models for coordinated loco-manipulation.
- Leveraging teleoperation and imitation learning to adapt pretrained VLAs for G1's embodiment and dexterous tasks.

### Financial Analyst Intern

May 2025 – December 2025

*Zinzino USA*

Remote

- Conducted research on transformer-based control, applying in-context learning to stabilize nonlinear and unstable dynamical systems.
- Designed and implemented **SAAM** (State-Action to Action Model), a GPT-2-based few-shot controller that learns control strategies without retraining.
- Achieved adaptation to unseen dynamics and parameters **without weight updates or explicit system identification**, enabling generalization at inference.
- Paper on this work expected in Q4 2025.

### Financial Analyst Intern

May 2025 – December 2025

*AgAnswers.ai*

Remote

- Architected and developed full-stack AI platform for agricultural automation, including React/Next.js frontend with real-time chat interface and Python Flask backend with a vast network of llms, tools, and agents.
- Built production-scale document processing system with vector databases, embedding models, and multi-modal analysis capabilities for any data source.
- Building agentic workflows for ag, enabling automated decision-making for everything from data management to equipment monitoring.
- Deployed scalable infrastructure using Docker, Vercel, Railway, and Supabase, handling document ingestion queues, user authentication, and real-time streaming responses.

### AI/ML Researcher and Engineer

Nov 2024 – Present

*AIFARMS, NCSA, and Center for Digital Agriculture*

On-Site

- Developing tools for LLM integration in production-scale chatbots, enhancing agentic workflows, which facilitated over 10,000 conversations and the efficient resolution of over 13,500 real-world problems.
- Implementing AI-driven solutions to increase the efficiency of current agricultural practices at scale.
- Building and researching agents, RFT, RAG, Reasoning, and pre/post training to advance AI capabilities in agriculture.

### AI Engineer

May 2025 – Aug 2025

*BrightTech AI & Qsystems AI (worked with both teams)*

On-Site

- Architected and implemented CSV comparison agent system with intelligent schema detection, automated key column identification, and human-readable difference reporting, enabling seamless data reconciliation across disparate datasets.
- Built comprehensive contact intelligence pipeline processing 15+ standardized fields through two-stage agent architecture: signal collection (LinkedIn, news APIs, social media) and persona analysis, generating executive briefings with temporal scoring and credibility signals.
- Developed 25+ specialized AI tools including BrightData integration, publication analysis, social media monitoring, and batch processing capabilities, supporting parallel execution with Redis/Celery job queues for high-volume enterprise workflows.
- Engineered CrewAI-based orchestration system with YAML configuration management, enabling scalable agent deployment across research, customer acquisition, and sales optimization workflows with 30-45 second per-contact processing latency.

## Startup (Signed NDA)

May 2024 – Aug 2024

*Founding AI/ML Engineer*

*Remote*

- Engineered advanced NLP systems, optimizing Retrieval-Augmented Generation (RAG) and intent classification.
- Designed a novel "wavular" RAG approach and hybrid embedding-based classification system.
- Applied vector space models, similarity metrics (cosine, Euclidean), and text representation methods.
- Managed large-scale NLP datasets with complex preprocessing, delivering innovative solutions for NLP challenges in resource-constrained environments.

## AAXIOM.org — My Startup Portfolio

March 2023 – Present

*FOUNDER, Sole Developer*

- NVRALONE peaked at \$10K/month in profit, IlliniPlan over 1k active users, and Voxed (Acquired May 2025).

## PROJECTS

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### WritGenius — AI & Agents for Law | *TypeScript, Google ADK*

- Developing a multi-agent system to assist with legal work.
- Currently working with a law firm to automate writs, pleas, and other legal documents.

### Climate Predict — Global Warming Calculator | *Rust, Regression Models*

- Developed a multi regression model in Rust. The project comprises 3 regression models: linear regression, polynomial regression, and random forest regression (incomplete).
- Used public NASA datasets to predict temperature change given CO2 emmisions.

### Devanagari Language Learning App | *Python, Flask, TensorFlow, Keras, scikit-learn, Pandas, NumPy, Matplotlib*

- Engineered a Convolutional Neural Network (CNN) to accurately recognize natural handwritten language.
- Enhanced model performance and accuracy through data preprocessing and augmentation techniques, ensuring robustness against diverse handwriting styles.
- Optimized training efficiency with back-propagation and gradient descent.

### Voxed.ai — AI Powered Notebook | *Google Cloud Services, OpenAI API, Ubuntu, PyDub, Python*

- Developed full-stack AI app that allows users to take notes, write code, and synthesize long form content via LLM interaction. LLM capable of code generation, direct note interaction, tool use, and file toggling via RAG pipeline.

### Manim Video Agent — Worlds Most Accessible Tutor | *Python, LLM, Pydantic, In-Context Learning, RL Fine-Tuning*

- Developed an audio/video agent that can solve any problem and explain it using beautiful animations. Handles tool batching and parallelization, recursive error correction, state caching/resurrection, and phonetic TTS mapping.

### MinLLM — Ultra-Lightweight Workflow Framework | *Python, pip package*

- A blazingly fast, zero-dependency framework for building directed graphs, LLM workflows, and agent systems. Written in roughly 100 lines while maintaining full expressiveness through operator overloading.

### IlliniPlan.com — Student Course Scheduler and Degree Progress | *Postgres, React, Typescript, Tailwind*

- Over 1k active users, over 10k course schedules created, and over 100k course recommendations.

### Research Agent | *Python, Langchain, LLM, RAG*

### IlliniSpots — UIUC Study Spot Finder (IOS App) | *Postgres, Firebase, Swift, React Native, Expo, Search*

### VoxAI — The Autonomous Learning Assistant | *Google Cloud Services, OpenAI API, Ubuntu, PyDub, Python*

### GuideMe — macOS app that guides users to perform tasks on Mac. | *Swift, SwiftUI, macOS*

### WNA — Chrome extension that guides users with a mouse pointer. | *TypeScript, Chrome Extension API*

## LEADERSHIP, COMMUNITY ENGAGEMENT & EXTRACURRICULARS

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### Pro Bono Projects

- Design and develop apps, AI tools, and websites for friends, family, and community members **at no cost**, solving real-world problems across diverse domains.

**Former Division 1 College Ice Hockey Player** | *University Of Illinois Men's ACHA Division 1 Hockey*

**Developed App for Plastic Surgeon** | *Facilitates patient database management and surgical procedure simulations*

**Chess** | *Rated 2000 over-the-board, Training to become a FIDE Master*

**BuildIllinois Cohort Team** | *Building and fostering startups at UIUC*

**Treasurer & Co-Founder of Illini Business Forum** | *Investment Banking, Accounting, and Consulting at UIUC*

**Content Creation** | *Streamed myself working 80+ hours a week on youtube and amassed 11k+ followers, 1M+ views*

## TECHNICAL SKILLS

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**Languages in order of proficiency:** C++, Python, TypeScript, Kotlin, JavaScript, Java, Rust

**Developer Tools:** Git, Linux, CLI, Docker, AWS, Vercel, Railway

**AI/ML:** PyTorch, TensorFlow, Transformers, Hugging-Face, OpenAI API, RAG, CrewAI, LangChain

**Web & Cloud:** React/Next.js, Flask, Supabase, Postgres, Firebase, Redis, Celery, FastAPI

**Data:** SQL, Vector DBs, Object Storage

## OTHER

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**Clubs/Organizations:** James Scholar, NSBE, MEP

**Interesting Facts:** Own and run an educational and motivational discord server with over 1k members focused on CS, ML/AI, Math, Physics, education, and overall life.