Neud Estifanoes

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EDUCATION

Georgia Institute of Technology, Atlanta, GA **Dec 2026**
Bachelor of Science in Neuroscience & Computer Science - Concentration: Computing & Intelligence **GPA**: 3.5/4.0
Relevant Coursework: Data Structures & Algorithms, Introduction to Artificial Intelligence, Machine Learning

EXPERIENCE

The Murty Lab **Aug 2025 – Present**
Researcher Atlanta, GA

- Modeled brain activity data to study neuron encoding and how closely AI models mirror real neural responses.
- Applied encoding models to large fMRI/ephys datasets to compare DNN layer representations with neural signals.
- Improved Representational Similarity Analysis scores by 40% by optimizing feature selection and model architecture.

SynapseX **Oct 2024 – Present**
Founder & President / Software Development Team Lead Atlanta, GA

- Founded Georgia Tech's first BCI organization, scaled to 200+ members, and led real-time neural tool development.
- Built full-stack EEG processing and decoding software pipeline achieving sub-500 ms stimulus-to-response latency.
- Trained LDA classifiers on both real and synthetic EEG data, achieving 95% accuracy in multi-class SSVEP tasks.

NextGen Computing **May 2025 – Aug 2025**
Software Engineer Intern Lawrenceville, GA

- Refactored backend video processing using Python and C++ to reduce runtime errors by 30% and improve stability.
- Optimized OpenCV and FFmpeg pipelines through batching and efficient frame handling for faster video processing.
- Implemented asynchronous execution using multithreading to decouple video ingest, processing, and display stages.

PROJECTS

Cursor Vector Engine **Oct 2025**

- Built an SSVEP-based cursor control system enabling hands-free cursor movement using real-time EEG signals.
- Decoded user attention across four stimulus frequencies with 80%+ accuracy using spectral feature extraction.
- Achieved sub-700 ms end-to-end latency by optimizing Welch PSD, sliding windows, and inference pipelines.

Event-Driven RL Trading System **Jun 2025**

- Built an automated trading system that learns market behavior from events to make buy and sell decisions.
- Implemented Deep Q-Learning with spike encodings and Shannon entropy features to model market state dynamics.
- Outperformed a rule-based baseline by 160× in cumulative return under identical backtesting conditions.

SKILLS

Programming Languages: Python, Java, JavaScript/TypeScript, C/C++, SQL, Bash, Assembly
Systems & Tools: Docker, Git, Linux, PostgreSQL, MongoDB, SQLite, WebSockets, gRPC, AWS/GCP
Frameworks & Libraries: React, Node.js, Flask, Django, PyTorch, TensorFlow, NumPy, Pandas, OpenCV
Interests: ML Systems, Systems Programming, Distributed Systems, Neural Signal Processing, Real-Time Systems

ADDITIONAL

Languages: English (Native), Tigrigna & Amharic (Fluent), Arabic & Dutch (Intermediate)
Honors: Dean's List (6×), Zell Miller Scholarship, Live Like Paul Scholarship (Fall 2025)