

GIOVANNI MICHEL

Machine Learning Engineer

U.S. Citizen | Willing to relocate

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EDUCATION

Master of Science in Electrical Engineering Northwestern University, Evanston, IL. Graduation date: June 2025	Cumulative GPA: 3.5
Master of Science in Artificial Intelligence Florida Atlantic University, Boca Raton, FL. Graduation date: August 2023	Cumulative GPA: 3.8
Bachelor of Science in Computer Engineering Florida Atlantic University, Boca Raton, FL. Graduation date: August 2022	Cumulative GPA: 3.4

EXPERIENCE

Graduate Research Assistant, Los Alamos National Laboratory Los Alamos, NM	August 2022 – June 2025
<ul style="list-style-type: none">Spearheaded training framework for porting Reinforcement Learning, Q-Learning to spiking neural networks using feature engineering for. Optimized inference latency by 30% (9.1 → 6.0 ms) on Loihi FPGA, for solving cart-pole balancing problem, and achieved mean score across 100 episodes of 491.38.Researched and engineered spiking-neural networks on the Intel neuromorphic research processor, Loihi. (advisors: Andrew Sornborger, Alpha Renner, and Gerd Kunde).Designed learning algorithm for training and validation of spiking neural networks for Reinforcement Learning and Control theory by implementing SITL framework for interacting with OpenAI gym.	
Graduate Research Assistant, Northwestern University Evanston, IL	September 2023 – June 2025
<ul style="list-style-type: none">Designed python data acquisition suite for modeling thermoelectric characteristics of semiconductor devices for accelerating development of MOSFET's for next generation quantum computers. Optimized measurement of low-t experiments 5x by developing scripts to interact with dilution refrigerator.Designed and verified an NFC-powered wireless temperature-sensor IC, creating schematics and testbenches for the sensor core, multistage power-harvesting rectifiers with bandgap reference, LDOs, and demodulation/ADC blocks to digitize the analog signal. Demonstrated stable supply and accurate readout through impedance-matched RC networks and full-chip validation.Designed, laid out, and validated a 16-bit SRAM memory bank with sense amps, bit-line pre-charge, and write circuitry; achieved a compact $1.495 \mu\text{m} \times 0.3825 \mu\text{m}$ cell passing all DRC/LVS checks. Optimized read/write energy to 34.3 μW (schematic) and 45 μW (layout), just $\approx 2.2\text{--}2.8 \mu\text{W}$ per bit.	
Software Engineer (Internship), Los Alamos National Laboratory Los Alamos, NM	May 2022 – August 2022
<ul style="list-style-type: none">Built the Data Science Infrastructure (DSI) prototype for the Common Model Framework (CMF) – designed a SQL-backed schema that captures simulation, filesystem, and performance metadata, turning multi-day HPC runs into a searchable, permanent knowledge base for analysis and visualization.Built a full-stack analytics layer for CMF—authored and optimized backend APIs/SQL for in-database analytics, dataset comparison, and metadata visualizations, and developed interactive browser dashboards (with a parallel-coordinates viewer) that let scientists explore results in real time, eliminating manual post-processing.Evaluated GUI front ends and set reproducibility standards – benchmarked ModelDB, Apache Superset, Trame and MLflow, and defined logging of parameters, code versions and environment configs to guarantee experiment repeatability and secure collaboration.	
Software Engineer (Internship), GRUBBRR Boca Raton, FL	September 2021 – February 2022
<ul style="list-style-type: none">Optimized previous QA processes by 30%, by writing custom Java code to automate red team testing for android kiosk products which lead to increased efficiency in product testing and design from idea to product releases. Followed CI/CD software development with version control.Performed QA automation for unit and functional tests assigned by Project Management, ensuring product quality and reliability.Contributed to onsite coordination, progress tracking, planning, closeout, and quality control to support project development.Collaborate with client integration teams to engage in inciteful discussions. Tracked and raised issues along product life cycle through Jira using Scrum and Agile methodologies.	

PUBLICATIONS

- Michel, G.,** Nesbit, S., Sornborger, A. (2024, December). Closed-loop Q-learning Control with Spiking Neuromorphic Network. LA-UR-24-32562. Association for Computing Machinery. **Paper.**
- Michel, G.,** Renner, A., Kunde, G., Sornborger, A. (2023, August). Towards Q-Learning-based control using a spiking neuromorphic network and sparse encoding. LA-UR-23-283336. Association for Computing Machinery. **Poster.**
- Michel, G.,** Pulido, J., Turton, T. (2022, August). Database Visualization for the Data Science Infrastructure Project. **Poster.**

ACHIEVEMENTS

Dean's List College of Computer Science & Engineering Florida Atlantic University	Spring 2023
GEM Employer Master's Fellowship Northwestern University	May 2023
<ul style="list-style-type: none">Awarded by the National Consortium for Graduate Degrees in Engineering and Science (GEM).Sponsored by Los Alamos National Laboratory, covering full tuition and providing a stipend for a master's degree in electrical engineering.	
NSF NRT Fellowship Florida Atlantic University	Spring 2022
<ul style="list-style-type: none">Awarded by the National Science Foundation for graduate studies in Data Science and Artificial Intelligence.Chosen as one of eight students from the entire engineering department for the 2022–2023 cohort.	

TECHNICAL SKILLS

Languages & Programming: Python, C/C++, JavaScript, Java, SQL, PyTorch, CUDA, VHDL, SystemVerilog

Software Tools: FreeRTOS, Docker, Git, CMake, AWS, ROS / ROS2, Gazebo, MoveIt, SLAM (Cartographer, GMapping), Nsight Systems, OpenCV