Nathan Labiosa

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Objective

Machine learning engineer and researcher with 3+ years of experience across deep learning, NLP, CV, RL, and multimodal models, seeking applied AI roles. Passion developed through first-author work in drug discovery, NeurIPS-accepted research on video robustness, and autonomous decision systems for space, with a focus on empirically grounded, interpretable ML.

Skills

- Python
- C++
- Reinforcement Learning
- Pytorch/Tensorflow
- Computer Vision
- AWS/Google Cloud
- Deep Learning
- NLP
- SQL

Education

University of Southern California — Los Angeles, CA
Master of Science - Computer Science — Sep 2025 - May 2027

University of Wisconsin - Madison — Madison, WI
Bachelor of Science - Biomedical Engineering and Computer Science — May 2025

Experience

Advanced Space — Westminster, CO
Machine Learning Intern — May 2025 - Aug 2025

- Built LLM-powered extraction pipelines which structured 5,000+ internal and scientific documents into a graph database, accelerating query response times by ~30%.
- Developed a modular MCP tool for graph-based RAG, increasing accuracy on complex queries by ~18% compared to vector search.
- Created RL/IRL algorithms for multi-object modeling, enabling agents to infer latent goals with >85% success in simulation-based space scenarios.
- Supported a NASA NIAC Phase 1 proposal, contributing technical groundwork that advanced exploration capabilities.

Revilico Inc — Los Angeles, CA
Machine Learning Engineer — Apr 2024 - May 2025

- Engineered and implemented ML pipelines for small molecule drug screening, allowing validation of eight novel drug activity predictors.
- Innovated bonding feature extraction tools from SMILES/chemical sequences, boosting IC50/EC50 prediction R^2 scores by ~0.12.
- Produced deep learning architectures for proteomic classification, improving accuracy 15–25% over industry baselines across 30 protein families.
- Built RL frameworks for de novo molecular generation, yielding 100+ novel compounds optimized for electronegativity, folding patterns, and pH balance.

Research Experience

University of Wisconsin - Madison — Madison, WI
Computer Vision Researcher — May 2024 - May 2025

- Contributed to a novel framework for temporally stable and corruption-robust video inference, integrating stabilization adapters into frozen vision backbones.
- Headed design and evaluation of adversarial robustness experiments, delivering +11.8% accuracy under iterative attacks without retraining base networks.

- Crafted stabilizer modules for ResNet architectures, reducing fine-tuning time by 40% while maintaining state-of-the-art robustness.
- Constructed and benchmarked a binary human/nonhuman classification task on the DAVIS dataset (3,455 annotated frames) with a fine-tuned ResNet-50, optimizing training schedules and augmentation protocols.

University of Central Florida Orlando, FL
Visual Large Language Model Researcher May 2023 - Oct 2023

- Oversaw collaboration with researchers from the University of Central Florida and Meta, driving significant advancements in large language model research.
- Refined complex, 65 billion parameter AI models into streamlined, 7 billion parameter university-level models, reducing compute cost by 92% and boosting widespread research applicability.
- Devised a visual large language model (VLLM) training method using novel techniques, merging over 150 thousand images and 160 thousand text examples during multiple training stages.
- Attained 95% of industry-leading text-based models leveraging a practical sized VLLM.
- Utilized Pytorch and DeepSpeed frameworks to execute parallel training in a high-performance GPU cluster

University of Wisconsin - Madison Madison, WI
Quantitative Cell Imaging Researcher Feb 2023 - Sep 2023

- Constructed novel software tools for tumor micro-environment quantification employing deep learning in the LOCI research laboratory, attaining 95% IOU vs state-of-the-art models.
- Improved cell recognition throughput by 1.2x, enabling lab imaging pipelines to analyze ~10,000 cells/day.

Publications

Adapting Frame-Based Networks for Stable and Robust Video Inference
Dutson M., **Labiosa, N.**, Li, Y., and Gupta, M.
NeurIPS, 2025. Under Review

Hybrid Transformer Model for Protein Classification
Labiosa, N., A. Kohli, C. Chung, and C. Korban.
bioRxiv, 2024. doi: 10.1101/2024.10.31.621421

Visual Information and Large Language Models: A Deeper Analysis
Labiosa, N., Huynh, D., Lim, S.
2023 UCF CRCV Catalog

Design Projects

PressurePal
Winner of the 2025 Peter Tong Award for most successful and marketable product

- Innovated a Bluetooth-enabled pressure-sensing device embedded into orthopedic casts to prevent pressure ulcers in neuropathic patients, achieving <1s latency in mobile transmission and calibration.
- Spearheaded all app and bluetooth development

Catch Up With My Committee
2024 Congressional Hackathon Honorable Mention

- Designed an NLP-powered legislative tracking platform to simplify complex bills to a 12th-grade reading level and foster two-way engagement with Congress.
- Formed user-centric interface prototypes in Figma; presented solution in a pitch competition setting.
- Co-led project, directed pitch development

Intraoperative Patient Warming Device
2024 Design Excellence Award Honorable Mention

- Created an eco-friendly medical device for maintaining patient temperature during surgery, realizing 20% higher heat retention efficiency than industry benchmarks.
- Guided experimental testing and thermal validation across 5+ simulated surgical use cases.