Pedro Tajia

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Education

University of California, Riverside Riverside, CA
Bachelor in Data Science *Expected 2028*
Certifications: Deep Learning Specialization, Machine Learning Specialization

Technical Skills

Languages: Python, C/C++, R
AI & ML Frameworks: Tensorflow, Pytorch, Keras, Scikit-Learn, HuggingFace, Robosuite, LightGBM, Gymnasium
Developer Tools: Git, Visual Studio Code, PyCharm
Data Tools: Pandas, NumPy, Matplotlib

Experience

Manufacturing Engineering Intern June 2025 - August 2025
New Hampshire ball bearings

- Reviewed and updated **300+ machine setup sheets** for turning operations, incorporating current tooling, blueprint-based dimensions/tolerances, and material-specific parameters.
- Optimized feeds, speeds, and tool selections to improve production efficiency, reducing cycle times by **5%-30% per part** while maintaining quality specifications.
- Collaborated with manufacturing engineers, line leads, and machine operators to resolve non-standard cases, validate changes, and standardize setup documentation across the production lines.

Machine Learning Engineer October 2024 - January 2025
AI Student Collective

- Created **AI-powered** e-commerce tool generating optimized descriptions across **200+ products**
- Engineered text + price/meta features and **solve severe class imbalance** (900k rows; 12k positives) using hard-negative undersampling; validated with stratified splits.
- Use **Streamlit app for interactive inference** with prompting, side-by-side diffs, and guardrails for factual and brand compliance.

Manufacturing Intern June 2024 - August 2024
New Hampshire ball bearings

- Authored 3 illustrated operator manuals for retainer-line machinery in 3 months, tripling historical documentation output.
- Collaborated directly with machine operators, line lead, and the manufacturing manager to capture tacit process knowledge and validate procedures.
- Standardized machine operation, tool change, and part-inspection workflows using visual documentation, reducing process variance and ambiguity on the production line.

Projects

MyDreamerV2 August 2025 – November 2025

- Built a Dreamer-style **reinforcement learning agent** in PyTorch using an RSSM world model and an actor–critic with imagination rollouts and lambda-returns. Reached **70% success after 280k envariomentsteps**
- Added a Plan2Explore-style exploration bonus and enabled training on **Apple Silicon via MPS**.
- Implemented an episodic replay buffer for sequence sampling and improved training stability with gradient clipping, EMA target networks, and checkpoints.

Technical Blog | Blog Oct 2024 – present

- Write clear, step-by-step posts that explain **AI/ML papers** in simple language on my personal blog.
- Published articles on **Medium with Humans For AI**, covering topics like self-supervised learning, world models, and AI in autonomous driving.
- Create reader-friendly explanations with diagrams, examples, and references so others can learn the core ideas quickly.