

# Dr. Erim Yanik

## AI/ML Research Scientist

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### Skills

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**Programming languages:** Python, Bash

**Generative AI:** Natural Language Processing (NLP), Large Language Models (LLM), Vision Transformers (ViT), Prompt Engineering, Hugging Face, LangChain, Retrieval-Augmented Generation (RAG)

**Machine Learning & Deep Learning:** TensorFlow (TF), PyTorch, Keras, Scikit-learn, Pandas, NumPy, Computer Vision, Algorithm Development, Predictive Modeling, Reinforcement Learning (RL)

**Data engineering & Tools:** Feature Engineering, Data Preprocessing, Data Visualization (Matplotlib, Seaborn), Statistical Analysis, Git, GitHub

**High Performance Computing (HPC) & Cloud computing:** Slurm, AWS, OpenAI API, Linux

### Work Experience

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**Startup Initiative**, Remote, USA

**Project Lead & Machine Learning Engineer** | 04/2024 – 03/2025

- Developed an AI system that won SAGES' FLS automation challenge, beating over 60 companies.
- Led a cross-functional team to deliver a production-ready AI prototype on GPU-backed AWS EC2 in under 6 months, eliminating a month-long manual review cycle.
- Currently integrating with a partner's frontend to **certify general and OB-GYN surgeons across the US and Canada**, projected to lower per-user testing costs by 25% (\$150/test taker, \$2.5M total).

**Florida A&M University - Florida State University, College of Engineering**, Tallahassee, FL

**Generative AI Research Scientist** | 12/2024 – Present

- Developing agentic LLMs for real-time decision support using RL and causal knowledge graphs.
- Reduced data labeling needs by 87.6% via Active Learning in medical settings where labeling is costly.

**AI Research Scientist – Postdoctoral Role** | 01/2023 – 12/2024

- Built a novel gaze-based attention block, achieving 96% accuracy in combat medic training simulations.
- Reduced data needs by 99% while maintaining 89.7% accuracy in the OR with as few as one training sample, enabling scalable deployment in data-scarce hospital workflows, via meta-learning.
- (Published: Nature Communications Medicine; Computers in Biology and Medicine)

**Rensselaer Polytechnic Institute (RPI)**, Troy, NY

**Research Assistant – Ph.D. study** | 05/2018 – 12/2022

- Improved automated surgical skill assessment benchmark by 12.6% via the novel Video-Based Assessment Network (VBA-Net) using instrument tracking and attention-based autoencoders.
- Improved VBA-Net performance by 5.7% through multimodal fusion of videos and neuroimaging.
- Built a real-time tool to highlight task errors, statistically validated in surgical simulations.
- (Published: Nature Scientific Reports; Nature Scientific Data; JAMA Surgery; The Journal of Defense Modeling and Simulation)

### Select Projects (<https://github.com/yaniker>) / (Conda-Forge contributor)

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**Meta-learner repository:** PyTorch codebase for one-shot and few-shot learning on time-series tasks in low-data environments. Under active consideration **for product integration by a healthtech company.**

**TrustPy (1,000+ downloads/month):** Python package for validating AI/ML model reliability and uncertainty before deployment. Distributed via Conda-Forge and PyPI. Actively managed with Git and CI/CD.

**Android clothing recommendation app:** Uses ViT + LLM head and TF-based classifier to recommend personalized, context-aware outfit pairings. Runs locally via TFLite for private and low-latency inference.

**Slurm automation:** Bash repository for automating HPC job workflows for large-scale computing.

### Select Certifications

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Generative AI Engineering with LLMs Specialization, IBM | 04/2025

Generative AI with Large Language Models, DeepLearning.AI, AWS | 03/2025

AI Engineering Professional Certificate, IBM | 06/2022