



Nathan Wendt

ML Engineer, Data Scientist



MSE Control Systems, WSU



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portfolio site



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About me

I am a researcher and engineer with nearly four years of experience in full-lifecycle project development. My expertise lies in explainable computer vision, particularly in few-shot learning and vision transformers.

At PNNL, I made significant contributions by challenging convention and pioneering new approaches, leading to the replacement of a baseline model in a multi-million dollar project involving over 100 employees.

During a professional hiatus, I traveled, snowboarded, and ran a pop-up kitchen, while keeping current with advancements in the field, especially generative image approaches like stable diffusion. I am now eager to advance my career and contribute to your projects with my unique blend of skills and creativity.

Skills

Expert:

Python, Pytorch, Tensorflow, SKLearn, Pandas

Experienced:

SQL, AWS, Spark, Docker, Linux

Exposure:

MongoDB, Java, C++, Hadoop

Learning:

Neo4j, Pytorch Geometric, Cypher

Expertise

- Computer Vision, NLU
- Few-Shot, Transformers
- Stable Diffusion
- Parallel Training, SLURM, Linux
- Hyperparameter Optimization
- Graph Databases, SQL

Publications

- 2019 Nathan Wendt, Chandan Dhal, and Sandip Roy, "Control of Network Opinion Dynamics by a Selfish Agent with Limited Visibility", 2019 IFAC LSS (Accepted).
- 2024 Kin NG, Nathan Wendt, Jasmine Eshun, and Emily Saldanha, "Weakly Supervised Contrastive Representation Learning To Encode Narrative Viewpoint of Tweets", 2024 ICWSM (Submitted).

Experience

7/23-present Freelance

- **Prompt Engineering (DataAnnotation)**
- Design data science prompts for LLM's and provide feedback and corrections for contrastive learning.
- **Full-stack web development (CTRL)**
- Full-stack web dev utilizing Next.js, React, HTML, CSS, and Postgres for database management.

8/19-1/23 Researcher and Data Scientist Pacific Northwest National Labs

- **Computer Vision Transformer:**
- Developed a transformer network with a Resnet backbone to identify and localize anomalous objects in multi-band x-ray images.
- Used Population Based Training for hyperparameter optimization.
- Used ensemble of PBT models to achieve a ~12% increase in TPR at 1% FPR on a difficult, weakly supervised classification task.
- **Explainability in Computer Vision**
- Implemented Deep K-nearest neighbors (DKNN) and Testing with Concept Activation Vectors (TCAV) which cluster intermediate activations of DNN's to explain model decisions, identify biases, and improve calibration.
- **End-to-End Few-Shot Object Detection with Cross Attention**
- Proposed and implemented a new model architecture for a few-shot object detection task.
- Replaced sequential models where backpropagation was disconnected with an end-to-end solution.
- Improved mAP by 15% while also improving model interpretability.

5/18-7/19 Research Assistant Washington State University

- Master's thesis on controlling opinion dynamics within social networks.
- PCA and MAP for anomaly detection to identify manipulative agents
- Submitted publication proving controllability bounds of network opinions
- created a novel centrality metric that outperformed PageRank in capturing node influence

6/18-8/18 OSS Intern NASA Ames Research Center

- Tasked with building a tool to simulate cyber-physical attacks on the SMART-NAS air traffic control simulator.
- Designed, implemented, and integrated a java based software tool for cyber-attack simulations.
- Major design focuses included modularity, extensibility, and ease of use.
- Learned an extensive API and produced results within an 8 week program.