Jason Lunder

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Research Engineer | NLP & Deep Learning | arXiv:2512.00204

Education

MS Computer Science — Eastern Washington University
Sep 2024 - June 2026 **GPA: 3.91** | Thesis: Tree Matching Networks for Natural Language Inference
arXiv preprint: 2512.00204 | 71% improvement over BERT baseline on SNLI benchmark

BS Computer Science & Mathematics — Gonzaga University
Aug 2019 - May 2023 **GPA: 3.54** | Cum Laude | Double Major

Technical Skills

Languages: Python, C++, TypeScript, SQL
ML/AI: PyTorch, TensorFlow, NLP, Computer Vision, Deep Learning, Graph Neural Networks, LLMs, W&B, Research
Infrastructure: Docker, AWS, GCP, Linux (5 yrs), Redis, MySQL, Git, Scientific Computing

Professional Experience

Founding AI Research Engineer — Jan 2024 - Present
Intellipat Inc. / Pangeon Corporation — Remote

- Architected production NLP system processing 10K+ patents per search, reducing prior art search time from 2 weeks to 3-4 hours (95%+ reduction) for patent law firms
- Led 5-person founding engineering team in designing and deploying full-stack ML infrastructure on AWS/GCP with microservices architecture
- Implemented end-to-end ML pipeline combining sentence embeddings, semantic search, and LLM-based analysis for novelty detection and invalidity search
- Achieved SOC 2 Type I compliance across authentication, encryption, and audit logging for enterprise clients

Data Science Intern — Jun 2022 - May 2023
Gestalt Diagnostics LLC — Spokane, WA

- Contributed to team winning 1st place in 2022 ACROBAT Grand Challenge, achieving 98.97% mean distance reduction on histology image alignment
- Trained computer vision models on >400GB datasets of whole-slide images using PyTorch for multi-stain tissue registration

Research Assistant, Center for Complex Systems — Oct 2020 - May 2023
Gonzaga University — Spokane, WA

- Developed novel lemma dependency tree-based machine translation system in PyTorch achieving ROUGE-1: 0.387, ROUGE-2: 0.092
- Designed and trained 5 deep learning models comprising complete translation pipeline: dependency parsing, vector reduction, tree-to-tree, and tree-to-sequence architectures

Publications

Lunder, J. (2025). Tree Matching Networks for Natural Language Inference: Parameter-Efficient Semantic Understanding via Dependency Parse Trees. *arXiv preprint arXiv:2512.00204*.
https://arxiv.org/abs/2512.00204