Jonathan Nafziger

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EXPERIENCE

PACKBACK
Senior Software Engineer
Jan, 2023 — Present

- Lead Python developer for NLP, plagiarism detection, AI content detection, and LLM-based chat assistant services.
- Improved plagiarism check times from a one minute average down to 15 seconds.
- Architected a paraphrase detector using sentence similarity models and dynamic programming.
- Built an event processing system handling 5k events/s with novel visualizations of the student writing process.
- Developed NLP algorithms to generate actionable feedback on student writing.
- Migrated AI detection and ML grammar correction to a dedicated GPU server, achieving a 20x speedup.
- Built and deployed new Python services based on PyTorch, FastAPI, Helm, and Kubernetes.
- Transitioned Analytics Service to use BigQuery to resolve issues with flaking data pipelines.

GRIDSPACE
Machine Learning Data Engineer
Apr, 2018 — Jan, 2023

- Built and managed data collection and labeling platforms using Django, Helm, and Kubernetes on GCP.
- Built a human-in-the-loop labeling tool for efficiently correcting machine-generated transcripts.
- Grew user base to 500+ active users, generating 3,000+ hours of domain-specific speech data.
- Designed and built dialog act and emotion recognition models.
- Collaborated with ML engineers to build and deploy state-of-the-art speech recognition and TTS models.

CONGRUITY WORKS AND PROFESSIONAL DEVELOPMENT
Web Development and Support
Aug, 2017 — Apr, 2018

- Provided support and development for wordpress and drupal sites using html, css, javascript and php.
- Completed 11 Coursera courses including the Deep Learning Specialization, building foundational skills in machine learning and data science.

PURDUE UNIVERSITY
PhD and Postdoctoral Researcher
Jan, 2011 — Jul, 2017

- Developed novel computational methods within the field of density functional theory.
- Wrote MATLAB software to solve problems involving ODEs and PDEs as well as corresponding inverse problems.
- Published 12 peer-reviewed papers and presented at 13 domestic and international conferences.

SKILLS

COMPUTER SCIENCE
Python, Django, FastAPI, React, PyTorch, TensorFlow, JAX, Spacy, Numpy, Scipy, Pandas, Scrapy, Kubernetes, Helm, GCP, BigQuery, Gitlab CI, Terraform

MATH AND PHYSICS
Machine Learning, Numerical ODEs and PDEs, Numerical Inverse Problems, Density Functional Theory, Quantum Mechanics, Electronic Structure

EDUCATION

PURDUE UNIVERSITY – PhD in Physics
2015 | GPA: 3.92 / 4.0

GOSHEN COLLEGE – BA in Physics, Minor in Math
2008 | GPA: 3.82 / 4.0