PETER OTT

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About Me

Innovative machine learning engineer dedicated to advancing AI capabilities through strategic development and execution. Passionate about delivering scalable, impactful solutions that redefine possibilities.

Education

MS in CS with Machine Learning Concentration - 2024

George Mason University - College of Engineering and Computing

BS in CS, Honors College - 2017

George Mason University - College of Engineering and Computing

Work Experience

BTI360: Data Scientist / Machine Learning Engineer
February 2020 - Present

- Agentic content analysis of sensitive documents before public release.
  - Prompt engineering, agentic workflows, tool use
  - LangChain and LangGraph, Python
- Significant technical contributor for a news aggregation system delivering near-realtime, AI-enriched mission information.
  - LLM prompting, tool use, data extraction, and enrichment
  - RAG, vector clustering, Docker and Kubernetes, Python, SQL
  - Recognized as “the most advanced use case implementation of LLMs in the world” - Microsoft Public Sector CTO - late 2023
- Trained a Multilingual Text Embedding model for document search that achieved SOTA (late 2024) on public MTEB for select languages.
  - LLM2Vec, LoRA, training dataset creation
- Consistent success across multiple modeling domains: Natural Language Processing (LLMs and smaller language models), text classification, information consolidation and aggregation, and semantic segmentation.
  - PyTorch, HuggingFace, OpenAI, HuggingFace, SageMaker, data pipeline design
- Handled customer communications for technical reports on modeling efforts, data conditions, project status, and emerging AI technology forecasts.
- Key player for developing internal AI/ML training.

Next Century (acq. by CACI): Machine Learning Engineer
January 2019 - February 2020

- Deep learning data fusion research on DARPA's MediFor initiative, focusing on the detection of deepfakes and other image/video manipulations.
  - TensorFlow for model architecture research

Other Experience

IDT: Intern (2013-2017) and Associate SWE (2017-2018)

- Machine Learning powered intelligent storage, sorting, and deletion of image files based on relevancy and task importance in a space constrained system
- Rapid discovery of system vulnerabilities via ML powered fuzz testing

  Python, genetic algorithm

Supplementary Courses

- HuggingFace - NLP Course
  - Tokenizers, Fine-tuning, Pipeline, Trainer, Datasets

Hobbies

Open Source Contributions

Baby Buddy - Home Assistant Add on

Track baby related tasks as to not forget when the last feeding or nap was. Baby Buddy was an existing application, my work packaged it into an easy-to-install Home Assistant Add on. Estimated 600 active users.

Docker, NginX, GitHub pipeline/actions

Home Assistant powered home automation

Various Raspberry Pi's and ODroids, and ESP32s hosting home security, surveillance cameras, network ad-blocking, smart light control, presence detection, file storage, family location sharing and more!