Tom Pollak

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EXPERIENCE

Graphcore April 2025 – Present
Machine Learning Engineer – Applied AI *Bristol, UK*

- Developed high-performance Triton kernels (MXFP4 MoE, Flash Attention, RoPE) for our custom accelerator.
- Develop pre-training infrastructure for large MoE models focusing on load-balancing.
- Presented workshop paper at NeurIPS: Variational Entropy Search is Just 1D Regression.
- Contributed to PyTorch: Pipeline parallelism deadlock fix with Gloo (#152938), SDPA MATH backend reference implementation fix: (#163508).

Cisco Meraki June 2023 – April 2025
Machine Learning Engineer – Camera Intelligence Team *London / Remote, UK*

- Led cross-camera tracking from idea to Beta release; presented at Cisco Live 2025.
- Technical lead of 6 engineers across firmware, model training, inference optimization, system architecture.
- Designed high-performance C++ inference engine and distributed k-NN search across camera mesh networks, enabling real-time retrieval across thousands of cameras with zero backend load.
- Built multimodal dataset (200K+ objects, synthetic and human-labelled) and fine-tuned CLIP-based models for zero-shot object retrieval.

University of York June 2023
BEng. Computer Science – First Class with Honours

PROJECTS

On-Policy quantization December 2025

- Researching LLM quantization via on-policy distillation. FP32 teacher guides MXFP4 student on its own generations rather than static datasets.

GPUMODE NVFP4 GEMM Competition November 2025

- Fastest Triton submission, 4x speedup over baseline. Annotated NVFP4 GEMM.

Parscale Cross-Attention August 2025

- Extension to Bytedance's PARSCALE enabling data-dependent communication between parallel replicas via cross-attention.

Nano Diffusion LLM July 2025

- "Nano" training and inference script for diffusion language models that generate text via iterative denoising. Implements masked diffusion (LLaDA-style) and Duo (flow-based, self-correcting).

Blender Copilot January 2025

- Blender plugin for generating 3D meshes from text prompts. Modal for inference, FastAPI / FastHTML backend.
- Demo.

xverify – GBNF structured generation March 2025

- Auto-generated GBNF grammars from Pydantic models. Integrates with RLVR for tool use / structured outputs.

Interpretability Research Aug 2024 – Jan 2025

- Trained SAEs on ARC-AGI like puzzles. Contributed to SAELens activation caching (#321, #367).

SKILLS

Languages Python, C++, Triton, CUDA.
ML PyTorch, TorchTitan, Faiss, Slurm, Kubernetes.