

Tom Pollak

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EXPERIENCE

Graphcore

Machine Learning Engineer – Applied AI

April 2025 – Present
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

Machine Learning Engineer – Camera Intelligence Team

June 2023 – April 2025
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, and 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

BEng. Computer Science – First Class with Honours

June 2023

PROJECTS

On-Policy quantization

December 2025

- Currently researching quantizing LLMs 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 implementation (25µs vs 100µs PyTorch baseline; winner's PTX: 18µs).
- [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.