Benton Tameling

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EDUCATION AND SKILLS

Carnegie Mellon University - School of Computer Science: Dean's List, 3.9 GPA Pittsburgh, PA
Bachelor of Science in Artificial Intelligence Expected December 2027

Languages: Python, Java, C, TypeScript, SQL. **ML/AI:** PyTorch, TensorFlow, RL, Computer Vision, MuJoCo, Gymnasium, Agent Orchestration, PID. **Infrastructure/Tools:** AWS, Next.js, REST, GraphQL, Git, Supabase

EXPERIENCE

CMU Momentum Lab Pittsburgh, PA
Research Assistant February 2026 – Present

- Developed a slip aware RL policy (PPO) for dexterous grasping on the 16-DoF LEAP hand in MuJoCo, achieving 500/500 hold steps under 5N perturbation and 97% retention under randomized 0-15N forces across 14 experiments (up from a 4% baseline retention rate).
- Diagnosed reward shaping as the primary bottleneck through ablation studies: a survival bonus + EE-delta IK action space unlocked a phase transition (eval 25 -> 416), while force curriculum had negligible effect.

Amazon Seattle, WA
Kindle Org, Software Development Engineering Intern May 2025 – August 2025

- Engineered a full-stack notebook sharing feature for the Kindle Scribe, enabling real-time, multi-user synchronization and collaboration.
- Built the backend by developing 10+ REST and GraphQL APIs in Java and TypeScript, and deployed scalable, distributed infrastructure on AWS using services such as Lambda, DynamoDB, and S3.
- Utilized modern development practices by managing over 5 core AWS cloud resources through Infrastructure as Code principles and successfully merging over 40 pull requests using Git.

Lightview Capital Pittsburgh, PA
AI / Data Science Intern August 2025 – April 2026

- Implemented custom AI agents for workflows such as CIM review, utilizing RAG to extract and structure key financial metrics in unstructured financial documents.

PROJECTS/HACKATHONS

Brain-Guided Diffusion and fMRI Memorability - Independent Research

- Discovered a cortical dissociation in visual memorability across 58K images: object selective regions of the brain positively predict whether images are remembered while scene selective regions suppress memorability (r=0.49), a sign reversal unreported in prior literature.
- Identified and characterized adversarial gradient failure in 1.2B-param brain encoder guidance across 200+ diffusion experiments: deep encoder gradients maximized brain activation via texture exploitation, not semantic content
- Solved adversarial gradients using CLIP linear probes as clean gradient proxies (PPA activation 15x over baseline) and per ROI LoRA adapters that boost target regions while suppressing others (PPA +0.689, LOC -0.167).

Solus - Grand Prize at Venture Hacks, $2500 prize | ML lead, backend

- Developed a hybrid knowledge graph system for robotics (structured graph + semantic embeddings + live telemetry + change log) with 14 entity types and 13 relation types to model full robot systems, enabling BFS-based change-impact propagation across hardware schematics, firmware, and mechanical assemblies.
- Multi-source ingestion connectors: KiCad schematics, GitHub repos, OnShape CAD, with static analysis to auto discover cross-domain relationships to populate the graph.

Mimir - Grand Prize at CMU Claude Builder Hackathon, $1500 prize | ML lead, UX

- STEM tutoring platform that synthesizes multi-modal learning environments for step-by-step learning processes.
- Built a custom generative pipeline to programmatically build explanatory mathematical animations based on user requests and context of user's workspace