

Levi Neuwirth

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EXPERIENCE

Cambridge AI Safety Hub — *MARS V Fellow*

July 2026 – October 2026 · Cambridge, United Kingdom

- Selected for MARS V, a competitive part-time AI-safety research fellowship, working under James Petrie (Future of Life Institute).
- Research on zero-knowledge proofs for large language models, toward cryptographic verification of claims about model training, inference, and deployment.

Shu Laboratory, Brown University Department of Neurology — *Undergraduate Researcher and Technical Lead*

October 2023 – May 2026 · Providence, RI

- Technical lead on **NeuroPose**, a 3D pose-estimation and kinematic-analysis system for neurological-recovery research. Built end-to-end pipeline: Python/TensorFlow deep-learning inference, MATLAB statistical post-processing, Rust backend with HTML/JS frontends. System supports four externally-funded sub-projects; clinical-implications manuscript in preparation.
- Co-lead developer on an **order-invariant ICD-10-CM embedding model** for 30-day readmission (AUC 0.75 vs 0.66 CCI baseline) and postdischarge mortality prediction (AUC 0.86 vs 0.78), Deep Sets architecture trained on 113M+ adult hospitalizations from the HCUP Nationwide Readmissions Database. Preprint under review at *JAMIA*; public calculator deployed at levineuwirth.github.io.

Shu Laboratory, Brown University Department of Neurology — *Research Affiliate*

May 2026 – Present · Providence, RI

Independent Research Contractor — *Frontier AI labs*

2025 – Present

Code and mathematics contributions across agentic workflow design, task and capability evaluation, reasoning assessment, model safety, and red-teaming.

NeuroAI LLC

March 2026 – Present · neuroai.health

Early-stage clinical-AI venture. Leading model development and deployment infrastructure.

PROJECTS

Post-Quantum Cryptography on x86 AVX2 *March 2025 – Present*. Micro-architectural study of SIMD contributions to ML-KEM / Kyber on Intel AVX2, conducted on Brown's OSCAR HPC cluster. Hand-written AVX2 assembly achieves $35\text{--}56\times$ speedup over compiler-optimized C for core NTT arithmetic; $5.4\text{--}7.1\times$ end-to-end KEM speedup. Full statistical analysis (Mann-Whitney U, Cliff's δ , bootstrapped CIs). Technical report and reproducible artifact public.

Weenix *January 2025 – August 2025*. Full Unix-like kernel in 10,000 lines of C: virtual memory, VFS, system calls, threading, device drivers and interrupt handlers, and file systems with custom linker support for running userspace x86-64 ELF binaries. Originally Brown CS 169 (Operating Systems with Lab), extended afterward with pipes and userspace preemption.

Networking Stack from Scratch *October 2024 – July 2025*. TCP/IP, RIP, UDP, and DNS implementations in Go, supporting file transmission of up to 1 GB across networks of up to 8 virtual machines. Extended with a fully RFC-compliant SSH implementation (2,000+ additional lines) supporting sustained sessions of arbitrary length.

EDUCATION

Technical University of Denmark (DTU) — *MSc in Computer Science and Engineering*

September 2026 – expected 2028 · Kongens Lyngby, Denmark

Brown University — *Sc.B., Mathematics and Computer Science*

August 2022 – May 2026 · Providence, RI

GPA 3.8/4.0. Brown Undergraduate Teaching and Research Award (UTRA), individual recipient, Summer 2024.