Tenzin Norphel

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Education

University of California, Berkeley *Expected December 2025*
Bachelor of Science in Electrical Engineering and Computer Science

- **Coursework:** Machine Structures and Architecture, Discrete Math and Probability, Integrated-Circuit Devices, Introduction to Robotics, Signal and Systems, Microfabrication, Control Systems and feedback, Robot Manipulation and Vision, computer security, Digital Design & Integrated Circuits, and Artificial Intelligence, Introduction to Internet Architecture, Cybersecurity

Skills

CAD (Computer Aided Design), MATLAB, ROS (Robot Operating System), Python, Sentaurus (Synopsys), C++, C, Java, Git, RISC-V Assembly, OpenMP, Git, GDB, Valgrind, MuJoCo (Multi-Joint dynamics with Contact), Keysight's EasyEXPERT, VSCode, Memory Management, Instruction-Level Parallelism, Compiler Optimization, FSM (Finite State Machine), Verilog (HDL), ASIC (Application Specific Integrated Circuit), Introduction to Internet Architecture, Cybersecurity

Experience

Product & Research Intern *Remote*
Custex Inc. — Berkeley SkyDeck ACE Program *June 2025*

- Selected as an BackEnd Engineering intern through UC Berkeley's SkyDeck ACE Program at Custex, an early stage startup
- Developed a Python-based Content Risk Analyzer that detects and categorizes high-risk text, including self-harm, abuse, and violent language
- Worked on keyword-based detection pipelines, implemented structured logging in CSV, and built visual dashboards to track flagged activity over time

Project Intern *Remote*
NASA - MCA (Mission Concept Academy) *May 2021*

- Used Siemen CAD tools to design a Rover and RIMFAX payload deployment system for lunar landing.
- Planned descent maneuver and vehicle design specific to the moon's environment.

Projects

Machine Learning Researcher *Berkeley, CA*
Neural Networks & Applied Deep Learning *November 2025*

- Built multiple neural network architectures in PyTorch for regression, image classification, language identification, and sequence modeling.
- Implemented a binary **perceptron**, multi-layer **feedforward neural networks**, and trained models using custom training loops, loss functions, and optimizers.
- Achieved high-accuracy **digit classification** on MNIST using fully connected networks and optimized hyperparameters such as batch size, learning rate, and hidden layer width.
- Designed an **RNN for language identification** across English, Spanish, Dutch, Finnish, and Polish by constructing recurrent layers that propagate hidden state across variable-length words.
- Implemented **Convolutional Neural Networks (CNNs)** from scratch, including a manual 2D convolution operation and integration with downstream linear layers.
- Developed and tested **scaled dot-product attention**, including causal masking, movedim operations, and matrix multiplications for Q–K–V attention heads.
- Extended concepts to build a miniature **Transformer/character-GPT** capable of next-character prediction using stacked attention blocks, normalization layers, and linear projections.

Digital Logic Designer *Berkeley, CA*
Logisim-Based CPU Design *July 2025*

- Designed and implemented a 5-stage pipelined RISC-V processor in Logisim. Verified design using testbenches and cycle-accurate simulations.
- Built the CPU from basic logic gates and registers, demonstrating a deep understanding of computer architecture.

Systems Programmer *Berkeley, CA*
Modular Snake Game in C *February 2024*

- Built a terminal-based Snake game in C using modular programming practices across multiple source files and header files.
- Applied concepts of memory management, pointer arithmetic, and struct-based design.