Tenzin Norphel

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Summary

Senior at UC Berkeley majoring in Electrical Engineering and Computer Science. Interested in hardware architecture, robotics, and semiconductor systems engineering, with strong collaboration, leadership, and problem-solving skills gained from both technical and service-oriented roles. Passionate about bridging the gap between software intelligence and efficient hardware design.

Education

University of California, Berkeley *Expected December 2025*
B.S. in Electrical Engineering and Computer Science (EECS)

- **Relevant Coursework:** Machine Structures, Data Structures, Discrete Math and Probability, Integrated-Circuit Devices, Microfabrication, Signals and Systems, Control Systems, Robotics, Artificial Intelligence, Cybersecurity, Internet Architecture, and Application-Specific Integrated Circuits (ASIC Design).

Internships

Product & Research Intern — Custex Inc. (UC Berkeley SkyDeck ACE Program) *Remote | June–August 2025*

- Developed a Python-based Content Risk Analyzer to detect and categorize high-risk language.
- Built visualization dashboards and automated reporting pipelines for alert tracking.

Project Intern — NASA Mission Concept Academy (MCA) *Remote | May–July 2021*

- Designed Rover and RIMFAX payload deployment systems using Siemens CAD for lunar applications.
- Simulated descent trajectories and payload deployment under low-gravity conditions.

Engineering & Research Projects

ASIC Design Engineer—3-Stage Pipelined RISC-V CPU (EECS 151 Project) *Berkeley, CA | October 2025*

- Designed and implemented a 3-stage pipelined RISC-V CPU supporting integer and CSR instructions in Verilog.
- Built ALU, hazard detection, and control logic; verified with SystemVerilog assertions and testbenches.
- Integrated cache and SRAM interfaces for optimized data/instruction access.
- Performed synthesis, floorplanning, and place-and-route using Cadence Innovus on SkyWater 130nm.

PCB Design Engineer — Custom MIDI Keyboard *Berkeley, CA | August 2025*

- Designed and fabricated a 4-layer PCB integrating microcontroller-based key scanning and USB communication.
- Created multi-layer layouts in KiCad, including grounding and decoupling networks for power integrity.
- Conducted debugging and board bring-up with oscilloscopes and multimeters to verify circuit operation.

Control System Engineer — Visual Servoing & Grasping Control *Berkeley, CA | April 2025*

- Designed PD-based joint-space controllers for a 7-DOF Sawyer arm tracking AR tags.
- Implemented inverse kinematics and grasp planners for Allegro Hand using MuJoCo simulation.

Robotics System Developer — TurtleBot Path Planning & State Estimation *Berkeley, CA | March 2025*

- Built RRT, sinusoidal, and Dubins path planners for a unicycle-model TurtleBot.
- Applied Lyapunov controllers and Kalman Filters for state estimation and drift reduction.

Semiconductor Device Designer — N-MOSFET Design Project *Berkeley, CA | Fall 2024*

- Designed a 25nm N-channel Si MOSFET using Synopsys Sentaurus TCAD; optimized threshold and drain current.
- Characterized I-V and C-V responses using Keysight 4155B and 4284A measurement systems.

Leadership & Service Experience

Mentee — Berkeley Mentorship Cohort *Berkeley, CA | July 2023–July, 2024*

- Collaborated with mentors to strengthen leadership, networking, and professional growth.

Tutor Assistant — Literacy for Every Adult Program (LEAP) *Richmond, CA | Apr–Nov 2021*

- Tutored adult learners in math, science, and English; encouraged confidence and lifelong learning.

Aquatic Assistant — El Cerrito Swim Center *El Cerrito, CA | May–Aug 2022*

- Supported pool safety and customer service; assisted lifeguards during operations and emergencies.

Skills

Hardware & Chip Design: Verilog (HDL), RTL Design, ASIC Implementation, Cadence Innovus, Synopsys Sentaurus, PCB Design (KiCad, Altium), Schematic Capture, Floorplanning, Timing Closure

Software & Robotics: MATLAB, ROS, Python, C/C++, RISC-V Assembly, OpenMP, Git, GDB, Valgrind, Linux CLI

Analytical & Simulation Tools: Keysight EasyEXPERT, MuJoCo, VSCode, TCAD, Control Systems, Simulation Environments

Professional & Interpersonal: Leadership, Team Collaboration, Technical Writing, Communication, Adaptability, Cross-Cultural Competence