Nicholas Hsu

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EDUCATION

Northwestern University												**Evanston, IL**
B.S./M.S. Computer Engineering, GPA: 3.96/4.00, Dean's List							*Expected June 2025*
- Relevant Coursework: Computer Architecture, Data Structures and Algorithms, Advanced Digital Design
- Programming Languages: Python, Verilog, C, C++, MATLAB, Racket, HTML

RELEVANT EXPERIENCE

Russell Joseph Lab												**Evanston, IL**
Research Assistant												*January 2023 – Present*
- Developed a generic dynamic timing analysis flow for timing error analysis in arithmetic circuits by autonomously generating and simulating Verilog testbenches for combinational circuits through Python programming, Cadence Genus, Linux shell, Synopsys VCS, NumPy, and Matplotlib.

GlobalFoundries												**Essex Junction, VT**
Process Integration Intern											*June 2023 – Present*
- Supported FEOL and BEOL Integration teams in in-line wafer defect monitoring and G85 wafer mapping, standardized multiple 350 nm wafer flows using structured problem solving through developing FMEAs and running experiments.

GlobalFoundries												**Essex Junction, VT**
Robotics and Automation Intern										*June 2022 – August 2022*
- Developed and integrated standardized emergency eye wash station inspections into mobile robot missions through Python programming. Composed a training manual for developers working with robots. Designed robot demonstrations incorporating autonomous pick-and-place created through training and evaluating a machine learning model with TensorFlow object detection API, NumPy, and Pandas.
- Verified robot capabilities within sub-fabrication environment by designing testing methodology to document and evaluate 120 different blockage and interference types, with employment of CAD maps in SOLIDWORKS and Excel.

ACTIVITIES & LEADERSHIP

Northwestern University Design Thinking and Communication					**Evanston, IL**
Team Leader												*September 2021 – December 2021*
- Designed adaptive fishing rod support device to allow patients at Shirley Ryan AbilityLab with hemiplegia to return to fishing by assisting in casting and reeling process, awarded Best Design at Design Thinking and Communication Fair.
- Coordinated team meetings to organize timely realization of deadlines, oversaw selection and purchase of materials, and directed construction of adaptive device.

Northwestern University Financial Technologies Club						**Evanston, IL**
Core Developer, Hardware Engineer									*September 2022 – Present*
- Developed scripts using Python programming to generate time series data regarding server health metrics with Git version control. Analyzed data collected versus time and integrated a crisis notification system using Slack and custom bots.

PROJECTS

SkiMonitor | ESP32, Arduino C++, HTML, CSS, JavaScript							*August 2023*
- Developed positional tracker and lighting system for skis/snowboards using multiple battery powered ESP32s to compute velocity, distances traveled, as well as integrated a complementary web app using HTML, CSS, and JavaScript to adjust lighting settings and view run statistics.

2048++ | C++, UNIX Shell											*December 2022*
- Constructed 2048 game from scratch in C++ development environment using subset engine of SDL2. Built user-interactive GUI using Model-View-Controller architectural pattern to enable player-driven gameplay. Deployed conclusive unit-testing.

BrickBreaker | ARM Assembly										*March 2023*
- Constructed fully functioning brick-out game from scratch in ARM-32 Assembly through deployment of a virtual VGA text and pixel buffer, and controllable using buttons and mouse input.

INTERESTS & SKILLS

Skills: Fluent in English and Mandarin Chinese, Microsoft Office Suite
Societies: Northwestern IEEE, Eta Kappa Nu, Taiwanese American Students Association, Philharmonia Orchestra
Interests: Semiconductors, Basketball, CS:GO, Weightlifting, Skiing, Food (Eating), Violin