

# PETER LEE

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## EXPERIENCE

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### Electrical Hardware Intern, Special Projects, Rivian

Mar 2023 — Present

### ECE 385: Digital Systems Laboratory (FPGA) Course Assistant

Jan 2023 — Present

- Held office hours to assist students in TTL-based processor design and FPGA lab assignments such as RISC processor datapath design using SystemVerilog

### Software Engineer, Disruption Lab at Gies

Sep 2022 — Mar 2023

- Created a natural language to solidity code generator as part of a team of 8
- Managed a preprocessing pipeline to deduplicate, chunk, and tokenize solidity files from openly available repositories
- The deduplication preprocessing script removed ~2000 duplicate files from a collection of 28000 smart contracts
- Parallelized the chunking preprocessing script that allowed the chunking process to be finished in 1/8 of the single-threaded version's runtime

### Undergraduate Research Assistant, Professor Kirill Levchenko's Lab

Dec 2021 — Dec 2022

- Utilized Arduino to create an SPI device to read data from an Airplane Personality Module(APM)'s EEPROM memory
- Developed a CLI-based TCP network pen-testing tool with Python to conduct cybersecurity attacks (e.g. SYN/ACK) on industrial control system (ICS) units used in railroads and power grids
- Analyzed memory board of an airplane's flight management computer (FMC) by tracing their electrical connection for reverse engineering
- Assembled custom PCB boards to read the firmware from the memory board mentioned above and to demonstrate concepts such as finite-state machine (FSM) by implementing rock paper scissors with digital logic

### Conversational AI Project Assistant Intern, DeepSignal

Jul 2022

- Designed a storyboard of the company's new service and presented them to the project lead
- Researched community website operations and wrote reports with basic profiles, user engagement motivation, early community growth methods, and user compensation
- Alpha-tested the company's conversational AI service and crafted bug reports and feature requests

## EDUCATION

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### University of Illinois at Urbana Champaign

Dec 2024

#### Computer Engineering, Bachelor of Science

- GPA: 3.9/4.0
- Dean's List: Fall 2021, Spring 2022
- Relevant Coursework: Computer Systems Engineering • Data Structures • Digital Systems Laboratory • Analog Signal Processing • Computer Systems & Programming • Discrete Mathematics • Linear Algebra

## PROJECTS / NOTABLE WORK

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### Resarch in Computer Architecture

- Currently working with Professor Rakesh Kumar on DNN accelerator design

Technologies: SystemVerilog, Python

### Unix Like Operating System

- Collaborated with 3 other group members to create an Unix like Operating System with a read-only filesystem, context switch, paging, interrupt, and system calls as part of ECE 391: Computer Systems Programming

Technologies: x86 assembly language, C, QEMU

### Card Connect - Virtual Tarot Card Interpreter

[1st place: 2023 Pulse Hardware Competition]

- Tarot reading machine that uses ultrasonic sensors to track landmark's location for drawing cards, ASR and TTS as user I/O, and OpenAI's GPT3 API as well as Tarot card API to generate response

Technologies: Arduino, C, Python

### StarCraft Dogfight: SoC approach on top-down shooter game using FPGA

- Top-down multiplayer shooter game with rich animation on DE-10 Lite FPGA board using SystemVerilog and NIOS II SoC IP. Users are able to play the game through any VGA monitor with keyboard inputs

Technologies: SystemVerilog, FPGA, C, Quartus

### Foodle: Restaurant suggestion device via Raspberry Pi

[Best Demo Video: 2022 Pulse Hardware Competition]

- Restaurant recommendation hardware using Raspberry Pi and 16x2 LCD display. The LCD display informs distance to the new restaurant every day. Users are able to find the chosen restaurant in gamified mode, similar to a scavenger hunt.

Technologies: Rasperry Pi, Python

## SKILLS

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- Languages: SystemVerilog, C, C++, Python, Javascript
- Technologies: FPGA, Quartus, ModelSim, NumPy, PyTorch, Markdown, Latex, Git, Adobe Suite, Blender