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Noah Sedlik
Computer Scientist | Electrical Engineer

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EDUCATION

University of California, Berkeley — **Aug 2021 – May 2025**
B.S. Electrical Engineering and Computer Science (EECS) — **GPA 3.6/4.0**
TBP Engineering Honor Society

Mira Costa High School, Manhattan Beach, California — **Aug 2017 – Jun 2021**
Summa Cum Laude, National Honor Society, Tri-M Music Honor Society, Honor Roll — **GPA 4.31/4.0**

EXPERIENCE

EECS Course Staff @ UC Berkeley College of Engineering — **Jun 2024 – Present**
Teaching Assistant, Discussion Development Lead – CS 61C Machine Structures
- Teach C Programming, RISC-V assembly, Hardware Design, Caches, Virtual Memory, Parallelism and Concurrency to 36-student discussion section
- Direct LaTeX-to-Typst Conversion project for increasing course material's ADA Accessibility
- Create engaging worksheets, presentations, and course notes for weekly review sections
- Delivered official course lecture on Fully-Associative Cache Design to 400+ students

Full-Stack Development and UI/UX Design @ Boolient — **Jun 2023 – Aug 2023**
Software Engineer Intern
- Designed and built full-stack software for modeling insurance contracts with the Django Python framework
- Developed prediction software with near-perfect accuracy for in-patient hospital payments
- Optimized Django + SQL queries to import multi-source data into PostgreSQL for pricing calculations

UI/UX App Design @ GamerSafer — **Jun 2022 – Aug 2022**
UI/UX Engineering Intern
- Collaborated with engineering team to propose and execute new design changes using Figma, resulting in increased user engagement and more welcoming user experiences
- Worked closely with frontend and backend engineers to explore inclusive design solutions

College Prediction Application @ Boolient — **Jun 2022 – Aug 2022**
Full-Stack Developer
- Communicated with employer to build custom, cross-platform desktop and web application from ideation to deployment
- Built Python communication microservice to accurately predict student acceptance rates

STUNT Committee @ University of California Marching Band — **Feb 2023 – Feb 2025**
Assistant Drum Major and STUNT Lead
- Created, designed, and choreographed the "Funk Disco" Halftime Show, performed for 36,000 fans and broadcast on national television during Pac-12 football game
- Taught five-day training program for 34 Teaching Assistants on how to instruct new marchers
- Led form clinics and daily rehearsals to improve the marching abilities of 240 members

Cybersecurity Club @ Mira Costa High School — **Aug 2017 – Jun 2021**
Team Manager, Team Captain, Chair of Communications
- Organized and prepared 14 teams for multiple cybersecurity competitions.
- Delivered lectures on Linux system administration and cybersecurity practices to the club's 70 members.
- Created detailed "attack plans" for securing computers and servers running Debian-based operating systems.

Marching Band @ Mira Costa High School — **Aug 2017 – Jun 2021**
Hornline Captain, Saxophone Section Leader
- Supervised and instructed the woodwind sections on musical expression and choreography.
- Led musical and visual rehearsals for the band's 80+ members.

PROJECTS

RISC-V Saturn Core System-on-Chip Tapeout @ UC Berkeley   **Spring 2025**
- Performing physical design exploration with the Chipyard Saturn Vector core to optimize performance within constrained area
- Writing RISC-V Vector benchmarks for Outer Products, Convolutions, and Matrix Multiplications to optimize SoC configuration
- Coordinating with ASIC accelerator teams to integrate on-chip and MMIO designs with Intel 16nm SoC Technology

ASIC 3-Stage RISC-V Processor (Verilog) @ UC Berkeley   **Spring 2024**
- Developed a 3-stage RISC-V CPU for the complete RV32I instruction set
- Implemented a 4 KB Direct-Mapped, Write-Back Cache with 64B Cache Lines using SRAM macros and a Read/Write FSM
- Optimized to 55 MHz clock speed with write-then-read register files, branch prediction, and hazard forwarding
- Mapped design onto FPGA and loaded and executed custom C programs over UART tethering

Pintos Operating System Enhancements (C, x86 assembly) @ UC Berkeley   **Spring 2024**
- Programmed in 4-person team to add features to the Pintos Operating System
- Added multithreading library with support for user-level threads, locks, semaphores, and condition variables
- Implemented heap memory allocator with custom sbrk() system call
- Wrote file system buffer cache which increased the speed of disk IO operations by 500%

MapReduce Distributed System Coordinator (Rust) @ UC Berkeley   **Spring 2024**
- Built fault-tolerant coordinator for scalable and highly parallelized data processing following the MIT MapReduce framework
- Developed API for coordinating worker cluster with open-source Remote Procedure Call framework (gRPC)
- Handled worker and job failures through task redistribution and heartbeat remote procedure calls

FPGA Audio Synthesis and Sequencing (Verilog) @ UC Berkeley   **Spring 2024**
- Developed square wave generator on an FPGA with support for linear and exponential frequency adjustments
- Integrated FPGA I/O peripherals to control frequency and audio output
- Combined generator and peripherals with Finite-State Machine (FSM) note sequencer and Numerically Controlled Oscillator (NCO) to produce variable-frequency sine waves

Cryptographic File Sharing Database (Golang) @ UC Berkeley   **Fall 2023**
- Developed encrypted file-sharing platform with secure user authentication, file storage, and collaboration functionalities
- Integrated AES-CTR and RSA file encryption, HMAC tamper-detection, KDF algorithm for key management scheme, and Argon2 password hashing to prevent side-channel attacks for robust security framework

Multithreaded Word Search Optimization   **Spring 2023**
- Developed program with C Standard Library to efficiently search a randomized list of 100,000 words across multiple files
- Enhanced performance with multithreading, OpenMP instruction-level parallelism, and cache optimizations

Voice-Operated Remote-Control Car @ UC Berkeley   **Fall 2022**
- Constructed encoder circuits, amplifiers, and microphone board regulators using NPN BJTs, diodes, and coupling capacitors
- Programmed linear control models based on least squares regression and PCA classification for audio command recognition

Gitlet Version Control System (Java) @ UC Berkeley   **Fall 2022**
- Applied object-oriented design patterns and test-driven development to recreate the Git version-control system.
- Developed methods for commit persistence and efficient data retrieval using linked lists, hash tables, and directed acyclic graphs.

SKILLS

Engineering	Functional and Object-Oriented Programming, Algorithmic Optimization, Concurrency, Database Systems, Digital Logic Design, FPGA Development, ECAD (Xilinx Vivado, LTSpice, KiCad), Operating Systems Programming, Analog Circuits, PCB Design, Computer Security, Test-Driven Development
Programming	C, Python, RISC-V Assembly, x86 Assembly, Verilog, Rust, Java, Docker, SQL, JavaScript

AWARDS

Honors Distinction – University of California, Berkeley	Fall 2021 – Present
Dean's List, Honors of Engineering – University of California, Berkeley	Fall 2021
Leadership Award – University of California, Berkeley	Fall 2021
1st Place Intermediate Division (California) — Cyber Innovation Challenge @ Cal Poly SLO	Aug 2020
1st Place Novice Division — Code Quest 2019	Fall Apr 2019
Scholar Athlete Award — Mira Costa High School	Fall 2017-2021