Lucius Scala

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EDUCATION:

University of California San Diego **Expected June 2028**
B.S., Computer Science GPA 3.6 | Provost Honors

PROJECTS:

SLLAB (Sports Logic Lab) | Founder | GitHub | sllab.io **Apr 2026 – Present**

- Built a platform giving a student-run club the logistics of a staffed program: an iOS app, public site, admin dashboard, and auto-tracking film system on one Postgres backend. Used daily by UCSD Men's Club Soccer (30+ users).
- Shipped Fixture (SwiftUI) to the App Store with one-tap availability, recurring scheduling, attendance ranking, and SMS reminders; the team averages an 80% RSVP response rate.
- Served the club site, web app, and admin dashboard from one Next.js 16 deployment via host-based routing, with tag-invalidated caching, live standings, an iCalendar feed, and a shared HMAC-signed web/iOS session.
- Designed the Supabase/Postgres 17 schema (event supertype with subtypes, season-scoped rosters, row-level access rules, check constraints). Merged 5 repos into a monorepo with ordered SQL migrations and path-filtered CI.
- Built an auto-tracking camera for $400 vs. $2,000 for commercial systems: on-device YOLO (Core ML) on an iPhone sends smoothed offsets over BLE to ESP32 firmware driving a stepper on a custom 2-layer PCB. Demo

Otium Technology | Cofounder **Jul 2025 – Oct 2025**

- Built an agent that turns plain-English sysadmin requests into Linux commands run over SSH, with a human approving each step. Owned the FastAPI backend and Next.js web app (WorkOS auth). Prototype drew 25 signups.
- Designed state-aware execution that captures system state around each step and generates the next command from the current state rather than a fixed plan. Demoed Apache + SSL setup on RHEL end to end (12/12 steps, ~3 min).
- Ran problem discovery through a research post (~200K views, 390+ responses), earned seed VC interest, and advanced two accelerator rounds. Shut down when enterprise compliance requirements (SOC 2) blocked sales.

hackmit2026.com | Co-creator, 2-person team | GitHub **Oct 2026**

- Reverse-engineered two undocumented gallery API endpoints and built a live stats site (Next.js, Supabase) with an idempotent sync that refreshed judging ranks every 10 minutes. 100+ organic users on launch day.
- Mapped 723 projects into 3D with TF-IDF, SVD and UMAP (44% neighbor preservation vs. 17% for PCA), finding 26 theme clusters. Built a ranking forecast with 27% top-10 precision vs. 17% random (5-fold CV).

Nachos Operating System Kernel | UCSD CSE 120, 2-person team **Apr 2026 – Jun 2026**

- Implemented threads and synchronization (alarms, join, condition variables) with no busy-waiting, plus file and process system calls (exec, join, exit) hardened against invalid user pointers.
- Built demand-paged virtual memory with lazy loading, clock page replacement, a global swap file and inverted page table, dirty-bit writeback, and page pinning. Stress-tested with concurrent processes on 4–8 physical frames.

RELEVANT COURSEWORK:

Operating Systems, Software Engineering, Advanced Data Structures, Design and Analysis of Algorithms, Machine Learning, Computer Vision, Artificial Intelligence, Probability and Statistics, Linear Algebra

SKILLS:

Languages:	Python, C/C++, SQL, Java, TypeScript/JavaScript, Swift
Web and backend:	Next.js, React, FastAPI, PostgreSQL (Supabase), REST APIs, Twilio, YouTube Data API
iOS and ML:	SwiftUI, Core ML, Vision, AVFoundation, Core Bluetooth, PyTorch, YOLO, OpenCV, scikit-learn
Infra and hardware:	Git, GitHub Actions, Docker, Vercel, Linux, ESP32, PCB design (EasyEDA), CAD, 3D printing