Cassius Villareal

cassiusfive@gmail.com | 971-336-7559 | linkedin.com/in/cassiusfive | github.com/cassiusfive

Education

Oregon State University **Expected June 2027**

Bachelor of Science, Computer Science GPA: 3.6 *Corvallis, OR*

- **Relevant Coursework**: Analysis of Algorithms, Operating Systems, Databases, Parallel Programming

Experience

Capital One **June 2026 – August 2026**

Software Engineer Intern *McLean, VA*

- Shipped to production a data recovery pipeline (Python, AWS Glue/Spark, S3) restoring customer relationship data across 3 interdependent datasets, handed off to the owning team for ongoing maintenance.
- Engineered Spark transformations reconciling backup snapshots against live service API schemas, handling field-level encryption and ID encoding across datasets with mismatched key formats and record identifiers.
- Automated deployment via a Jenkins-based CI pipeline and instrumented Splunk dashboards with a Lambda-to-Slack alerting path on job lifecycle events, surfacing API failures and restore progress for on-call triage.

Navi Labs Inc. **June 2025 – September 2025**

Full Stack Engineer Intern *San Francisco, CA (Hybrid)*

- Built a cross-protocol, cross-asset position migration flow with route selection over candidate execution paths, batching each migration into a single atomic transaction to cut average cost 5% against the baseline route.
- Shipped a multi-wallet monitoring system consolidating position tracking across user wallets into one dashboard.

Articulate Intelligence Company **June 2024 – June 2025**

Software Engineer *Corvallis, OR (Hybrid)*

- Built a full-stack course articulation platform (FastAPI, sentence transformers) using semantic similarity over course descriptions, iterating with articulators on the review workflow to cut processing time by roughly 30%.
- Developed an agentic workflow that located course catalogs across university sites and parsed them into structured, queryable course records, reducing manual data-entry effort by an estimated 60%.
- Migrated production infrastructure from Fly.io to AWS (EC2, S3, CloudFront), owning provisioning, deployment, DNS cutover, and CDN-backed static asset delivery end to end.

Projects

VISTA: Autonomous Code Translation Pipeline | *Python, LiteLLM, vLLM, CUDA, OpenMP* **arXiv:2607.04058**

- Building a multi-agent CUDA-to-OpenMP migration pipeline (senior capstone) that self-corrects through a translate, compile, differential-test, and repair loop, generalizing to configurable language pairs.
- Co-authored a paper on Kaizen, ORNL's fuzzing-based differential testing framework (under review, **ACM TOSEM**), contributing differential testing scaffolds and gcc/nvcc compilation tooling used across 16 scientific applications.

Balatro RL Environment | *Python, PyTorch, NumPy, Gymnasium, Slurm* **github.com/cassiusfive/balatro-gym**

- Created and maintained an open-source OpenAI Gymnasium environment for Balatro, exposing full game state and action spaces through a standard RL interface and attracting code contributions from engineers at Meta and Google.
- Vectorized environment rollouts to step many games in parallel and distributed training jobs across a university SLURM cluster, substantially cutting turnaround time on agent training experiments.

Course Scheduler | *TypeScript, React, Express.js, PostgreSQL, Docker* **coursemink.com**

- Built and shipped a full-stack course scheduling application adopted by 500+ students at Oregon State, reducing average schedule-building time by 4x over manual term planning.
- Implemented Tabu search with neighborhood moves over the schedule constraint space, generating conflict-free schedules that respect section availability, enrollment constraints, and user time preferences.

Technical Skills

Languages: Python, C, C++, TypeScript, JavaScript, SQL, CUDA, OpenMP

Frameworks/Tools: AWS (Glue, S3, EC2, Lambda, CloudFront), Spark, Splunk, Docker, Jenkins, Git, PostgreSQL, React, FastAPI, Express.js, PyTorch, NumPy, Pandas

Awards

1st Place, Sui Track — CalHacks | Champion, Citadel / Correlation One Terminal Competition (1st of 36 teams)