

Christopher Farah

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EDUCATION

University of Cincinnati

Cincinnati, OH | AUG 2022 – PRESENT

Bachelor of Science, Computer Science, Graduating May 2027 | GPA: 3.315/4.00

- Coursework: Data Structures, Computer Systems, Discrete Structures, Programming Languages, Statistics

WORK EXPERIENCE

Forschungszentrum Jülich | Performance Engineering Intern

Jülich, Germany | JAN 2026 – AUG 2026

- Profiled containmentFoam, an OpenFOAM-based CFD solver for containment atmosphere thermal-hydraulics during severe nuclear accidents, using perf top-down analysis to prove the bottleneck was memory latency (~44% of cycles stalled) rather than arithmetic.
- Identified a jemalloc allocator preload that cut runtime 4.7% without touching solver code, and produced the team's first measurement of its existing mesh renumbering step (-8.4% wall clock, -82% cache misses), together validating ~12% end-to-end against production runs.
- Diagnosed and fixed a set of memory leaks, then built CI/CD regression and leak testing so they stayed fixed.
- Built a reproducible benchmarking harness and documented negative results (AVX2 vectorization, PGO, loop fusion) alongside GAMG vs. PCG solver A/B testing, producing an adopt/avoid handover for the team.

Honeywell Intelligrated | Project Engineering & Product Development Intern

Mason, OH | SEP 2024 – DEC 2025

- Started as a project engineer on customer sites, configuring and testing conveyor systems and connecting directly to installed controls to verify behavior.
- Moved to the MCBL (Machine Control Business Logic) team, picking up scoped tasks from the team backlog across its event-driven core services.
- Verified gRPC version changes for backward compatibility so new releases would not break existing service contracts.
- Implemented password encryption so credentials were encrypted at the point of submission.
- Wrote and maintained team documentation for MCBL services.

PROJECTS

LexGrip | lexgrip.com

APR 2026 – PRESENT

- Designed and built a vocabulary-focused language learning app with an AI tutor that generates and caches translation, multiple-choice, and other question types on demand, recording every mistake so users can see exactly where they are weak.
- Implemented FSRS (Free Spaced Repetition Scheduler) to schedule each card at the predicted point of recall failure.
- Built the backend as multiple Java/Spring Boot services on a Kubernetes cluster backed by PostgreSQL, with a spaCy NLP service handling linguistic processing.
- Wrote user stories and managed the product backlog to keep development sequenced against the highest-value business needs.

CampusCribz | campuscribs.org

JAN 2025 – PRESENT

- Architected and deployed a full-stack platform for students to list and discover subleases, with Spring Boot APIs, PostgreSQL schema design, and a React/TypeScript frontend.
- Built an event-driven analytics pipeline with RabbitMQ and ClickHouse for real-time product insights and customer-facing reporting through Prometheus/Grafana dashboards.
- Integrated NudeNet image moderation to automatically detect and block explicit content in user-submitted listings, and drove SEO optimization for organic listing discovery.
- Integrated Keycloak for OAuth2/JWT authentication, role-based access control, and multi-tenant user management.

Home Lab | Self-Hosted Infrastructure

JAN 2025 – PRESENT

- Built the Proxmox and Docker infrastructure hosting both LexGrip and CampusCribz, with MinIO object storage and Cloudflare Tunnels for encrypted zero-trust access.
- Built observability pipelines with Prometheus/Grafana and prototyped Retrieval-Augmented Generation with local LLMs (LLaMA 3), pgvector, and LlamaIndex.

SKILLS

Programming Languages: Java, Python, C++, TypeScript, JavaScript, SQL, HTML, CSS

Frameworks/Libraries: Spring Boot, OpenFOAM, React, Next.js, Node.js, Express, spaCy, LlamaIndex

Databases: PostgreSQL, ClickHouse, MongoDB, pgvector

Infrastructure/DevOps: Docker, Kubernetes, Proxmox, Debian Linux, Nginx, RabbitMQ, MinIO, Cloudflare Tunnels, Prometheus/Grafana, CI/CD, Git, AWS

Other: Keycloak (OAuth2/OIDC/JWT), REST APIs, gRPC, performance profiling and optimization, Agile/Scrum

Languages: German, English, Spanish