AJ Ferrick

814.490.7458
ajf@ajferrick.com
https://ajferrick.com

SELECT WORK EXPERIENCE

Mytra — Software Engineering *(Sept 2023 - Present)*

- Developed, as part of a small team, the path planning backend for a novel high-density robotic warehouse storage system. This system implemented all necessary features to satisfy factory acceptance requirements for the company's first customer. Evaluated fundamental technologies and system architectures, iterated on path planning and path-clearing algorithms, and built APIs to power a custom warehouse operator user interface.
- Collaborated with other teams to build out simulation and hardware-in-the-loop integration testing tools. Enabled scripting a variety of test scenarios, including long-running hardware cycle tests.

Sabbatical *(July 2021 - Sept 2023)*

- Taking time to rest, recharge, and pursue creative projects, programming and otherwise.

Slack — Backend, Platform Engineering *(June 2016 - July 2021)*

Staff Backend Engineer *(Feb. 2020 - July 2021)*

- Tech lead for a second-generation workflow engine with tighter Slack integration. Iterated on a series of prototypes alongside executives and other engineers to home in on a product vision that responded to customer workflow needs. Responsible for the specification and implementation of the core backend architecture. Programmed the core execution engine while onboarding other teams and overseeing development of other backend components. The team hit ambitious deadlines to move from prototypes and internal usage to early customer testing of the new workflow capabilities, over approximately eight months.
- Independently prototyped new projects to address Platform developers' needs. Among other projects, defined the capabilities and technical architecture for App Manifests, a feature to replace manual Slack App management with YAML configurations and declarative APIs. It eliminated user boilerplate work, enabled Slack developers to create dev/test/prod pipelines, reduced bugs with Slack App management, and anticipated new technical needs of upcoming Platform projects. For each prototype, wrote summaries of the problems and my findings, recorded demos, and outlined the work each project would require.

Senior Backend Engineer *(June 2017 - Feb. 2020)*

Drove Platform product and code quality improvements:

- Prototyped various Slack App interaction patterns, culminating in releasing App Dialogs. Sole backend engineer working closely with mobile and frontend. It enjoyed consistent use across hundreds of Slack Apps, and set a UX direction for future Platform projects.
- Started a small team to ship quick enhancements to Platform features and improve the codebase's foundations. Drove team efforts and made substantial contributions towards overhauling Slack's ad-hoc data access into disciplined, strictly typed data access layers.
- Wrote unit and integration Platform testing libraries to enable consistent test setups and mocks.

Advanced key projects across teams in the company:

- Joined the BYOK Encryption project to accelerate development of migration system for Enterprise customers already using Slack, expanding the customer base. Built a framework for migrating any Slack data, with reference implementations and a test harness.
- Selected for special training on incident investigation and post-mortem facilitation. Assisted the lead incident researcher with investigations, including a large company-wide outage. Analyzed several authentication incidents and wrote a synthesis of common attributes with recommended fixes, which was used to justify the budget and new roadmap for an overarching authentication team.
- Made engineering-wide improvements during a rotation on the "Backend Foundation" team. Migrated libraries from procedural PHP to strictly typed object-oriented Hacklang. Integrated code health scoring and test measurement tools into the company's CI systems.

Provided leadership and engineering stability for another Platform team experiencing sudden staff and management turnover:

- Evaluated team's portfolio of features and transferred out-of-scope responsibilities to relevant teams.
- Participated in on-call for three consecutive months, fixing critical issues to reduce the rate of incidents. Advocated for on-call scheduling approach to reduce churn and improve morale. Drove adoption of RED metrics and alerts on all APIs to monitor performance and identify potential issues. Increased unit and integration test coverage over all features.

- Onboarded three new backend engineers to the team and fostered camaraderie. Mentored a remote summer intern, including scoping three projects and participating in daily pair programming or career development sessions.
- Supported the backend team on two large cross-functional projects with pressing deadlines. Worked alongside the new tech lead to scope, spec, and implement the backend changes for Enterprise Apps, a Platform-wide initiative to simplify third-party authorization and standardize APIs for Enterprise customers. Implemented portions of Socket Mode, a websocket alternative to webhooks that enabled Slack Platform usage from behind corporate firewalls.

Backend Engineer *(June 2016 - June 2017)*

- Designed and implemented the APIs and backend systems for various Slack App features: App Link Unfurling, multi-user App administration ("collaborators"), App Directory search, among others. Adapted various existing features and APIs to work with Threads and Slack Enterprise Grid. Development required working with sharded MySQL, queuing systems, caches, and web APIs.

The Daily Dot — Backend Software Engineer *(June 2015 - April 2016)*

- Following Circa's shutdown, core members of the engineering team were hired by the Daily Dot.
- Improved the Django, Heroku, and CI/CD infrastructure. Major milestones included cutting costs for static asset management and reducing site deployment times from 20 minutes to 2.
- Led initiatives to improve communication and idea-sharing between engineering and other groups: Slack channel for triaging defects, engineering office hours, technical documentation and runbooks.

Circa News — Backend Software Engineer *(July 2014 - June 2015)*

- One of five software engineers covering all of Circa's consumer and editorial software.
- Identified and fixed code and infrastructure bottlenecks that caused service degradation during breaking news traffic surges. Measured and improved delivery time between publication and push notification delivery.
- Designed and implemented the backend for Circa's next-gen CMS, built for unique editorial and reader needs. Major features included a Git-like revision control system for structured stories that enabled diffs for editors and exposed story timelines to readers.
- Advocated for code quality: refactored the backend unit test suite to be twice as fast; defined linter rules.

Addepar — Product Manager, Release Engineer *(June 2012 - Sept. 2013)*

- Drove development of Addepar's first web product, a client portal for portfolio performance reporting, from an MVP to adoption across many clients. Wrote roadmap for the initial release, working with engineering to specify behavior. Gathered customer feedback and troubleshooting errors.
- Managed the web release lifecycle: building release candidates, coordinating QA testing, tracking regressions and compatibility with Addepar's evolving infrastructure, communicating changes to clients and client-facing teams. Release frequency increased from 14 days to near-daily.

EDUCATION

Stanford University

M.S., Management Science & Engineering, 2014

Case Western Reserve University

B.S.E. *cum laude*, Systems & Controls Engineering, 2011

Alden Undergraduate Fellowship in Systems Engineering
Donald Eckman Award for Outstanding Systems & Controls Graduate

SKILLS

- **Programming Languages:** I'm most familiar with Python, SQL, HTML, CSS. I've previously used Go, Java, C#, JavaScript, Vue.js, C, Verilog, MATLAB; I'm comfortable picking up and working in most languages. Please don't ask me to write PHP again. ;^)
- **Infrastructure & Tooling:** MySQL, Vitess, PostgreSQL, Redis, Memcache, NATS, ElasticSearch + Kibana, Linux (ubuntu, others in hobbies), Heroku, AWS, Docker, Grafana, Presto, Prometheus, Jenkins, git, queuing systems.
- **Signal Processing:** Perceptual audio compression, linear control systems, FPGA programming, audio production, path planning in some mobile robotics.