

Jason Mandel

914 ~ 417 ~ 5472
jmandel1027@gmail.com

Education

Bach. Sci in Fine Arts, Mathematics & Computer Sci.
School of Art + Design, Purchase College 2013 - 2018

Experience

Software Engineer L6, Block, Developer Experience: CI/CD, Dec '24 ~ Current

~ Leading an initiative to create a unified abstraction layer for Infrastructure at Block with **Runway**. At Block one of the largest challenges developers face is the reliability and complexity of our infrastructure control planes. We are leading an initiative to transition product developers at Block from ad-hoc **Cloudformation & Terraform** to curated Platform Interfaces in a **GitOps** harness where the complexity of Infrastructure is managed behind a simple YAML interfaces with **least privileges by default**.

~ Leading an initiative to transition Block's **AWS & GCP** administration control plane to **Runway**. This administers over **20,000 AWS Accounts** at Block and is responsible for establishing foundational security primitives on all AWS & GCP environments at Block. This is widely considered to be the most sensitive class of CI/CD workload in the business.

~ Leading efforts to support the increasing scale of **Intersect** and **Runway** which is serving agentic assistance to Developers in real time.

~ Designed a Service to Service access framework for services to access staging + production services over the mesh on a declarative basis. This enabled progressive delivery methodologies for services to validate the artifact and deployment promotion flows. This also enabled services deployed to multiple tenants to validate their changes and ensuring fast rollback.

~ Deployed a new **Bazel RBE Buildfarm** cluster to support our monorepo scaling efforts. **Square** and **Cash** have some massive monorepos with unique scaling requirements. By centralizing build orchestration to **Bazel** runners it allows us to support more **agentic workflows** against our codebases while alleviating the significant increased load to our systems.

Software Engineer L5, Block, Cloud Platform: CI/CD, Jan '23 ~ Dec '24

~ Designed a GitOps interface to abstract AWS IAM roles + permissions for CI/CD workloads. Initially we rolled this out to Afterpay's ~**200** AWS accounts but this model has since scaled out to **20,000** AWS accounts across **Square, Cash App, TIDAL**, and emerging initiatives. It is now used as the default CI/CD permissions system business wide.

~ Collaborated with the AI + Machine Learning and Data Science orgs at Block to create a centralized CI/CD harness called **Forge** on **Runway** for Training, Inference, and ETL workloads to improve velocity and quality in Data + AI initiatives across all Business Units. Since then this has scaled to be the default developer interface for ML/DS + AI engineering across Block supporting over **800 engineers**.

~ Led and completed an initiative with TIDAL engineering to migrate **250 services** off Jenkins to **Runway**. This is now supporting the entire TIDAL org, and handling global CI/CD operations for TIDAL products.

~ Led an initiative to enable code scanning on **Runway** for Block's various Open Source Github organizations. This is evaluating all contributions from the community to ensure that community contributions to some of the largest OSS projects are not malicious in nature. This required extensive infrastructure work to ensure isolation from malicious actors.

~ Designed and rolled out an image + artifact signing pipeline for Docker + Lambda artifacts for attribution and reporting. Collaborated with Security and Compliance stakeholders to ensure that artifact reporting met their needs. Rolled out initially with **Afterpay**, but later extended to **Cash App** and **Square**.

~ Designed and implemented various caching layers to speed up and enhance git, docker and hermit performance by up to **80%** through tiered caching layers with **butterFS**. Host level caching for the most immediately available resources, and remote caching tiers relying on S3 as pull through cache. Some of our repository snapshots were up **30GB** in size with a **180GB** git workspace with a **P90** under **10 seconds**.

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Experience Continued

Software Engineer L4, Block, Cloud Platform: CI/CD, Feb '22 ~ Dec '22

~ Led an initiative to re-architect Afterpay's CI/CD platform into a globally distributed architecture called **Runway** across 6 Regions and 3 international markets to ensure reliability and isolation to meet PCI + SOCS2. This required significant tooling and integration to mesh networking between Block and Afterpay's **AWS & DC** environments.

~ Designed a Code Scanning platform for ProdSec called **Intersect** that leverages **Runway** as a compute and orchestration platform for evaluating code changes across all Repos. This started initially in Afterpay and was later rolled out to Square and Cash App. To date (12/25), its scanned **5,000,000** commits for vulnerabilities across **15,000** repositories and a developer community of **5,000** devs. Its evaluated and captured critical vulnerabilities in real time with remediation pathways presented to devs and service owners.

~ Led an initiative to lock down the engineering organization's Nexus artifact platform and improve security for interfacing with Nexus via **Cloudflare & Terraform**. This required new tooling and automation against legacy **Cloudformation** stacks that had been more or less left unattended.

~ Led and completed a migration to **Runway** for all 300 services at Afterpay to this new CI/CD platform, as part of this effort we designed in collaboration with ProdSec, a GitOps control plane to manage CI/CD workloads, permissions and identity.

Technical Lead, 1build, April '21 ~ Jan '22

~ Architected & lead development on a distributed, event driven data processing pipeline with **Golang, Kafka** and **Pachyderm** to consume and normalize construction material, labor and fixture across the country into **Postgres**. Periodically processing 100s of GBs of data into production per run, reaching a throughput of ~17,000 messages per second.

~ Architected & lead development on a web based construction takeoff tool that loads localized, real time data on material, labor and fixture pricing from across the country with **Golang, GraphQL, gRPC, PostGIS, React & Typescript**. Connecting the dots between complex geometric representations on plans and blueprints, to line items in the Estimate & Takeoff UI. Coordinating across engineering, product and design functions on many continuous iterations.

~ Collaborated with CEO to develop a framework and criteria for hiring a Head of Engineering.

~ Lead development on a migration from hand spun k8s clusters & AWS infra to a durable foundation leveraging **Terraform**, Infrastructure as Code & **Flux** as GitOps. Modularizing and fortifying table stakes infra for the engineering, Marketplace & Product organizations.

Software Engineer, 1build, July '20 ~ March '21

~ Architected & lead development on a Payment gateway that handles millions of dollars in annualized revenue powered by **Stripe & Golang**.

~ Architected & lead development on a distributed File Ingestion system that can break down customer PDF's at high scale, system could quickly churn through PDFs as large as 12 gbs and generate thumbnails, **OCR**, and relational data with high throughput powered by **Golang, Kafka & Pachyderm**.

~ Worked in tight formation with Operations & Marketplace teams to facilitate the expanding needs of a remote fleet of on demand cost estimators, often debugging situations in real time with customers.

~ Collaborated with Data, Marketplace & Operations team to implement an "estimator matching" algorithm that matches customers projects with the estimators who are best suited to work in it.

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Experience Continued

Software Engineer, Toggle Industries, Sept '19 ~ May '20

- ~ Architected geometry extraction pipeline for Robotic Work Cell with **Go**, **GraphQL**, **OCR**, **PostGIS**, **GDAL**.
- ~ Implemented cloud migrations for on premises systems at facilities with **Terraform**, **Bash**, **AWS** and **Azure**.
- ~ Architected **Frontend** and **Backend** systems to interface with inventory mgmt systems, extract and annotate geometries for robotic cell with **React**, **Typescript**, **Go**, **Node**, **Webpack**, **WebGL**, **Docker** and more.
- ~ Crafted DevOps Pipelines with **Terraform**, **CircleCI**, **Docker**, **Bash**, **Go**, **Node**, **AWS**, **Azure** and more.
- ~ Built integrations for **ABB IRB-6700** Robot arms, APIs and factory systems with **Go**, **ROS**, **gRPC**, **AWS Greengrass** and **NVIDIA Jetson**.

Software Engineer, Numina, June '18 ~ April '19

- ~ Architected a Sensor Installation app with **React Native**, **Typescript**, **AWS Lambda**, **Node**.
- ~ Implemented various reporting utilities onboard embedded sensors with **Python**, **InfluxDB**, and **Athena**.
- ~ Broke down a monolithic **Flask** app into **microservices** with **Python**, **OpenCV**, **Go**, **PostGIS**, **Lambda**.
- ~ Built a **API Gateway** to talk to various microservices with **Python**, **GraphQL**, and **AWS Lambda**.
- ~ Built reporting and sensor management dashboards with **React**, **Typescript**, **Webpack**, **WebGL**, **Docker**, **NGINX**, **AWS EC2**, and **CircleCI** among others

Software Engineer (Contract), FOAM, March '18 ~ June '18

- ~ Built simulations to demonstrate network capabilities and generate data with **Python**, **Jupyter Notebooks**.
- ~ Built **Frontend** marketing site to demonstrate capabilities and visualize network with **React**, and **WebGL**.
- ~ Built **Frontend** component library with **React**, **Webpack**, **Styled Components** and more.
- ~ Built **Frontend** application for **Web3** product to curate registries of POI data with **React**, **Metamask**, **Typescript**, and **Deck.GL**

Research Assistant, Parsons Urban Systems Lab, Jan '18 ~ June '18

- ~ Participated in the NSF funded Urban Resilience to Extremes Sustainability Research Network (UREx).
- ~ Built tools to super-impose datasets via a **Spatial Join** with **Python**, **PostGIS**, **GDAL**, and **OGR2OGR**.
- ~ Built **Frontend** app to visualize Socio, Eco, and Infra datasets for cities with **React**, **Deck.GL** and more.
- ~ Built a data warehousing solution for static GIS tilesets with **AWS S3**

Teacher & Admin Assistant, Rye Arts Center, Mar '16 ~ Jan '18

- ~ Taught Creative Coding and Game Design classes with **Processing** for kids ages 10 - 14.
- ~ Taught instrument design classes with **Arduino** & **Processing** for Kids aged 12 - 15.
- ~ Collaborated with Board of Directors on Activity Programming and fundraising strategy.