Patrick Huarng

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EDUCATION

- **The University of Chicago** — Chicago, IL
  Master of Science in Computer Science; GPA: 3.8 — *Aug. 2017 – Jun. 2019*

- **Oregon State University** — Remote; Corvallis, OR
  Post Baccalaureate in Computer Science; GPA: 3.9 — *Jun. 2016 – Aug. 2017*

- **Michigan State University** — East Lansing, MI
  Bachelor of Arts in Finance; GPA: 3.5 — *Aug. 2007 – May. 2011*

EXPERIENCE

- **Amazon** — Seattle, WA
  Software Development Engineer II — *Jan 2021 - Present*
  - **LaunchPad (Monera)**: LaunchPad is a TypeScript, NextJS, Java, GraphQL, RPC service that allows Amazon teams to develop custom, product detail pages using JSON and code artifacts. This service speeds up delivery and development of detail pages from quarters to mere weeks. My contributions towards this project is leading both frontend and backend development of the service, as well as leading customer onboarding and delivery into production.
  - **Discovery**: Discovery is a Java, Tomcat, RPC service that serves up over 100,000+ RPS of traffic. It's purpose is to aggregate and cache data from various downstream systems so that internal Amazon customers can query and transform that data (in-app, using our "docket" technology) into a custom product object for their particular business. My contribution to this service is to act as the team's tech lead, responsible for implementing new features (ie. 1:n offers), downstream data sources (ie. collections), and resolve operational issues (ie. resolving media-central service problems).

- **M1 Finance** — Chicago, IL
  Senior Software Engineer (Portfolio & Data Tech Lead) — *Nov 2019 - Jan 2021 (1+ years)*
  - **Performance**: Performance is a Scala, Lagom, Akka, Kafka, SQS service that provides cashflow and performance calculations to our users (serves up more than 450 RPS under peak load). Refactored much of the core logic for money-weighted return calculations, dividend and trade cash flows, re-migrated tens of millions of records, and made the system more stable by handling network failures better and refactoring parts of the app to use a message-based architecture.
  - **Fraud**: Fraud is domain that is housed in multiple different backend services. The solutions I have helped build include: Plaid integrations to get external banking information; Socure integrations to risk-score users when we onboard them; designed and developed a rules-pattern for ACH transfers in/out of M1. All solutions described here use the following technologies: Scala, Lagom, Akka, and Kafka.
  - **Broker**: Broker is a service that accounts for a user's cash, positions, and account information. It is responsible for more than 80% of revenues and is a very critical and complex domain. As a core developer on this system, I have used Lagom and Akka to add new, event-sourced entities to the system (ie. most recently IRA activity and business rules) and resolve issues by hardening the system via bugfix and/or writing additional reactive or batch-based logic.

- **University of Chicago: Center for Translational Data Science** — Chicago, IL
  Software Engineer — *Apr 2019 - Nov 2019 (8 months)*
  - **GDC API**: The GDC API is a Python-Flask system that handles over a 1 million downloads a month and over 10 petabytes of data downloaded annually. Implemented new features like admin endpoints and tarfile download of clinical data.
  - **Reports API**: Convert the reporting features of the GDC API into a microservice. Containerize and deploy the new microservice into various environments. Enhance batch processes to backfill data with additional information (ie. genomic experimental strategy).
  - **ESBuild**: ESBuild is a Python batch-layer system that creates the data for ElasticSearch indices. Refactored and improved caching and denormalization processes of the system improving memory consumption and runtime performance.

- **UChicago Systems Research on Availability, Reliability, and Efficiency**   Chicago, IL
  Research Assistant   *Nov 2018 - May 2019 (6 months)*
    - **MittOS Memory**: Advised by Dr. Haryadi Gunawi and Cesar Stuardo. Research focus is on making distributed systems more performant by being able to signal to other machines that the JVM is in a stop-the-world garbage collection phase. Solutions implemented in OpenJDK 8, Java, and C++.

- **National Opinion Research Center at the University of Chicago**   Chicago, IL
  Software Developer   *Oct 2018 - Apr 2019 (6 months)*
    - **Getting on Track**: Getting on Track is an education application that helps teachers and social scientists measure nationwide kindergarten readiness. Maintained the application, implemented new features, and modernized the Django-JQuery application into separate front-and-backend applications (VueJS and Django-REST).

- **Braintree (a Paypal Company)**   Chicago, IL
  Data Operations   *Jun 2018 - Aug 2018 (3 months)*
    - **Batch Systems**: Develop batch systems for the data operations team to process over 12 trillion records. Aggregate various information sources (incidents and other operational data sources) to determine merchant satisfaction levels using a logistic regression model.

- **Information Services Group (ISG)**   Detroit, MI; Stamford, CT; Chicago, IL
  Consulting Manager   *Dec 2011 - Apr 2019 (8+ years)*
    - **Strategy & Technology Consulting**: Specialist in transaction advisory and cloud advisory. In my consulting career I have been ranked as a top-five consultant in the firm and have been awarded the chairman's club honor twice (an honor given to less than 2% of the company annually).

PROJECTS

- **Project Nora (2020)**: Mobile and web application that allows a user to enqueue from anywhere in the world. My contributions to the system are primarily backend-related work on: AWS, Terraform, Docker, TypeScript, NodeJS, Sequelize, PostgreSQL, and Next.js.
- **BeautyShelf (2019)**: Mobile and web application that keeps track of makeup expiry (beautyshelf.app). Developed the entire web front-and-backend systems in React, Flask (Python), Docker, and AWS.
- **Twitter-Stocks (2019)**: Big-data, Lambda architecture based system with ingestion, batch, serving, speed, and web layers. Built using Kafka, Spark (Scala), Hive, HBase, Flask (Python), and VueJS.

PROGRAMMING SKILLS (INTERESTS)

- **Programming Languages**: Scala, Java, TypeScript, JavaScript, SQL, Python
- **Technologies**: AWS, Kubernetes, Terraform, CircleCI, Akka, Lagom, Play, Guice, DynamoDB, PostgreSQL, NodeJS, React, NextJS, Kafka