James Fennell

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PROFESSIONAL EXPERIENCE

Backend Software Engineer, Informatics division, Schrödinger *July 2018 to present*

- Developing and maintaining the backend of Schrödinger's web-based data collaboration platform for drug discovery.
- Primarily working on a Java monolithic application and its interactions with Postgres, using Hibernate ORM and raw SQL.
- Also contributing to the software's Python SDK, pytest integration/API tests, and new Python micro-services.
- Developed the first meaningful performance test of the backend and managed its deployment on Jenkins.
  - Daily test run since responsible for catching numerous performance regressions in pre-production.
  - Focus on clear and reproducible test results led to engineering buy-in and adoption of evidence-based decision making around performance sensitive code.
- Led a cross company project to build a new pipeline for importing data from Schrödinger's main desktop application.
  - Order of magnitude faster data imports and significantly simpler and maintainable code.
- Working within an engineering culture of excellence where code review, Git source control and unit and automated testing are fundamental.
- Unix/Linux (Ubuntu and macOS) development environment.

LARGER PERSONAL PROJECTS

Transiter github.com/jamespfennell/transiter · demo.transiter.io *November 2017 to present*

- Web service that subscribes to realtime and static transit data feeds and provides integrated data views through a RESTful HTTP API.
- Built in Python using the Flask web framework, SQLAlchemy ORM, with Postgres as a backing database.
- Original graph theoretic algorithms compute provably optimal route maps from timetable or realtime data.
- Continuous integration pipeline on Travis CI builds Docker images, runs unit and end-to-end test suites, pushes artifacts to Docker Hub and PyPI.
- Deployed using Docker compose or Kubernetes via a configurable Helm Chart.

Realtime Rail NYC github.com/jamespfennell/realtimerail.nyc-react · realtimerail.nyc *June 2019 to present*

- JavaScript/React web application for viewing New York City Subway train arrival times, using Transiter as a backend.
- Technologies used including JSX, HTML, CSS and JavaScript libraries axios and React router.
- Travis CI process compiles production JavaScript build and bundles it inside of an Nginx Docker image for deployment.
- Deployed on a Digital Ocean Managed Kubernetes cluster.

EDUCATION

Ph.D., Mathematics, Courant Institute, New York University *graduated May 2018*

- Doctoral research in the pure mathematics field of dispersive partial differential equations.
- Studied extensions of the linear Schrödinger equation to non-Euclidean geometries in two single-author publications.
- Graduate level coursework in algorithms, data structures, cryptography, linear algebra, calculus, probability, statistics.

B.Sc., Mathematical Sciences, University College Cork, Ireland *graduated May 2013*

- University Science and Engineering Graduate of the Year 2013.