



## RYAN B. HARVEY

Coder, Datahead, Educator, Wonk, Dad  
Open source contributor and maintainer

## Résumé

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<https://CodeAndData.codes>

### Online Profiles

[Github Profile](#)

<https://github.com/nihonjinrxs>

[Loyola University Faculty Profile](#)

<https://www.loyno.edu/academics/faculty-and-staff-directory/mr-ryan-harvey>

[LinkedIn Profile](#)

<https://linkedin.com/in/ryanbharvey>

### References?

Of course, just ask!

## Who is Ryan?

I'm a fun-loving geek who is driven to create useful things (mostly with code) almost as much as I am called to teach others how to do it themselves. I work hard to improve the lives of others in my free time and want to do so at work too. I enjoy diving into data and have been known to get lost in SQL at times. I'm driven to solve tough problems, from distributed systems to machine learning to video engineering. I read lots of books, but never seem to get through my reading list. I'm a happy husband and father of two.

## Education and Training

### Johns Hopkins University on Coursera, [coursera.org](https://coursera.org)

**Specialization (non-credit):** Executive Data Science - data science management (Mar 2016)

### University of Maryland, College Park, MD

**Ph.D. work (unfinished):** Applied Maths, Applied Stats & Scientific Computing (candidacy Jun 2010)

**Certificate (non-credit):** Innovation Management (May 2010)

**M.S.:** Applied Mathematics & Scientific Computing (Dec 2007)

**Graduate Certificate:** Scientific Computing (Aug 2007)

**Graduate Certificate:** Computational Harmonic Analysis (Aug 2007)

### Loyola University, New Orleans, LA

**B.S.:** Mathematics & Computer Science (May 2001)

**Online Courses:** Various on software development, data science, machine learning, and other topics

## Professional Experience

### Sr. Software Engineer (contract), MBTA

*Remote / Boston, MA*

*June 2023-present (7 months, full-time)*

I'm a Sr Software Engineer with the rider-focused team at the Massachusetts Bay Transportation Authority's Technology Innovation Department (formerly Customer Technology Dept.), a group working to ensure that riders of MBTA's transit options have the best possible experience getting where they need to go. In that role, I am working as a member of the Fares Technology team on Elixir/Phoenix-based apps and services that enable easier customer-side management and back-office distribution of fare products: CharlieCards, passes, and reduced fares programs.

- Worked with our team using Elixir and Phoenix LiveView to bring a new rider-focused re-imagining of the MyCharlie CharlieCard management website to MVP launch on time
- Built features in Elixir and Phoenix LiveView to integrate with various backend services, including workflow, payment, SSO and other platforms
- Designed, specified, and implemented role-based authorization and features for a backend administrative side of the MyCharlie Elixir/Phoenix LiveView application
- Built infrastructure, data migration, asynchronous task support and more using Terraform, AWS, and Github Actions to enable systems to support rider use and back-office processes effectively

### Adjunct Instructor, Loyola University New Orleans

*Onsite & Remote / New Orleans, LA*

*Dec 2016-present (6 years, part-time)*

As an Adjunct Instructor, I teach upper level undergraduate computer science courses. In a volunteer capacity, I assist the Department of Mathematics & Computer Sciences with computer science curriculum development, project ideas, community partnerships, and research.

- Developed and taught [COSC A451 Software Engineering program capstone course](#) in a service learning mode, engaging students with real-world projects for government and non-profit partners
- Developed and taught [COSC A319 Internet Technologies elective course](#) covering Internet fundamentals, network protocols and Internet-based software development
- Developed and taught [COSC A499 Open Source Software guided study course](#) covering open source project structures, contribution approaches, roles and team structures, licenses, and communities

### Mentor (Volunteer), Mandeville HS Robotics Team (FRC Team 2992) (Java)

*Onsite & Remote / Mandeville, LA*

*Aug 2022-present (7 months, volunteer)*

## Skills

### Human Languages:

English (native), Japanese (working conversation, limited reading/writing)

### Academic Fields:

Computational Harmonic Analysis, Software Engineering, Distributed Computing, Machine Learning, Video & Image Processing

### Management & Leadership:

Visioning, Strategic Planning, Public Speaking, Agile Project Management

### Computer Languages:

Elixir, JavaScript/Node.js, Ruby, R, Go, SQL, Python, HTML, CSS, Rust, Java, C, MATLAB, SAS

### Databases:

PostgreSQL, MySQL, SQLite, IBM DB2, MongoDB, Amazon RedShift, Neo4j

### Operating Systems:

Apple macOS, Linux (various; Ubuntu/ Mint preferred), Microsoft Windows

### Tools, Packages & Frameworks:

Git, Github, Phoenix, Express, React, Rails, Sinatra, Shiny, Plumb, Flask, dbt, NumPy, SQLAlchemy, and others

### Media Creation Software:

Google G Suite, DaVinci Resolve, Adobe Creative Suite, Apple Keynote, Prezi, Inkscape, The GIMP

Further details can be found on my website: <https://CodeAndData.codes>, and pages linked from there.

## Brigade Captain (Volunteer), Code for New Orleans (Ruby on Rails, Node.js, Go, PHP)

Onsite & Remote / New Orleans, LA

Oct 2016-present (6 years, volunteer)

## Staff Software Engineer, Screencastify

Remote / Chicago, IL

January 2022-June 2023 (1.5 years, full-time)

I was a Staff Software Engineer with the amazing team at Screencastify, a startup helping to make video-based instruction easy for teachers and school districts by providing a suite of tools for creation and editing of videos and assignment creation and tracking based on those videos. In that role, I did a variety of work to help the team operate effectively and the company be successful, including de-risking and prototyping new ideas and approaches, breaking down and planning engineering work, architecting large-scale changes to the code bases, identifying patterns and technologies that we can build on, coaching and mentoring colleagues, building software and supporting systems, and pairing and mobbing with fellow engineers to solve problems.

- De-risked, identified, and scoped work for opportunities to maintain current revenue streams while building new products
- Built features in our React/TypeScript/Node browser-based video capture and editing app to support just-in-time video processing and manifest generation and async out-of-band video processing
- Led and implemented large portions of a project to migrate critical legacy data to new systems
- Optimized CI pipeline for better visibility and refactored containerization to move common dependencies to base image using Docker, Github Actions, Google Cloud, And Terraform/Helm

## Senior Software Engineer, Healthify (now WellSky)

Remote / New York, NY

March 2021- January 2022 (9 months, full-time)

I was a senior member of the Engineering team at this mission-driven social determinants of health startup, where I helped build our Rails app, AWS/Aptible infrastructure, and dbt/Looker data services.

- Prototyped and built in-app self-serve reporting feature long requested by customers, integrating Looker dashboards and reports into our Ruby on Rails-based application
- Enabled the team by improving DevOps pipelines, tooling, and observability of ELT processes, and by mentoring earlier-career engineers

## Senior Backend & Data Engineer, TED Conferences

Remote / New York, NY

Aug 2016-March 2021 (4 years, full-time)

In this position on TED's Technology Team, I built processing pipelines and products for TED's web presences and internal tools. I spent two years on the Analytics Squad, then moved to the Video Squad.

- Built a user recommendations API that serves recommendations for over 10 million subscribed users using R, Node.js, and Go.
- Built an automated, containerized video encoding system in Node.js with FFmpeg and integrated it with our Ruby on Rails-based asset management app, including creating an open source [Fessonia Node.js library](#) for integrating FFmpeg (which I still maintain)

## IT Project Manager, Executive Office of the President

Onsite / Washington, DC

Apr 2012-Aug 2016 (4 years, full-time)

In the Budget Systems Branch of the Office of Management and Budget, I was responsible for the development of our government-wide data collection platforms (Ruby on Rails, Java EE) enabling the development and publication of the President's Budget. I made sure our 180,000+ users were happy and ensured that all the must-have features were complete within the slim timelines allocated. I also managed our UX design team and improved our development and project management tools and processes.

- [Built and delivered a map-based display of community programs information](#) on the [White House website front page](#) which was covered by Wired magazine
- Managed development and improvement of a suite of collaboration applications, leading several cross-functional teams of contractors and in-house technical staff in work on over 50 applications
- Developed, delivered and began implementation of a multi-year architecture shift to cloud-ready services, including hardware and networking transition, software architecture and interface specification, service transition and launch planning, CI/CD automation, and security, monitoring and maintenance planning