

# James Nicholson

nicholsonjf@gmail.com | nicholsonjf.com | linkedin.com/in/nicholsonjf | github.com/nicholsonjf

## Experience

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**Senior Web and Application Developer**, Harvard Chan School of Public Health Sept 2019 – present

- Designed and implemented an authentication/authorization layer for the Harvard Chan Intranet using open source software, eliminating the need for a costly vendor product.
- Served as technical lead on a multi-year flagship website redesign, collaborating cross-functionally with product stakeholders across multiple organizations.
- Completed a Master's Degree in Software Engineering from Harvard while working full time, reinforcing expertise in system design, distributed systems, and machine learning.
- Designed and built an application that programmatically generates thousands of faculty and researcher profiles, replacing a manually driven content management system.
- Onboarded and mentored three developers; established and documented development standards and tooling used by the entire team.
- Led technical implementation of the Emma email marketing service, leading to adoption by over 30 departments and labs and greater visual consistency for official school communications.
- Introduced an asynchronous job queue that provides superior observability and reliability for background task processing.
- Tech: PHP, JavaScript, MySQL, AWS, React, Laravel, SAML2

**IT Systems Analyst**, Stanford Graduate School of Business Sept 2015 – Sept 2019

- Developed and maintained a service request platform with multiple backend iterations, automating scheduling, metadata tracking, and integration with classroom systems.
- Designed and deployed a cost-efficient SMS alert microservice.
- Built automation and scripting tools (NetDB cleanup, Crestron Toolbox integrations, Google Apps Script pipelines) that streamlined workflows, reduced manual tasks, and improved system reliability.
- Completed Crestron certifications enabling advanced backend integrations with AV and distributed systems.
- Partnered with hardware vendors to integrate cloud-based class capture systems, supporting automated scheduling and real-time monitoring.
- Created business intelligence dashboards from service platform data, enabling management to track costs and improve decision-making through data visualization.
- Led peer cross-training sessions to reduce single points of failure and increase team resiliency.
- Supported high-visibility events including MBA Admissions webinars (400+ registrants) and global distance learning programs.
- Tech: JavaScript, Python, Google Apps Script, Tableau

## Education

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**University of Colorado Boulder**, BS in Journalism

**Harvard Extension School**, MS in Software Engineering

- Capstone project: Multi-shot Information Extraction for Meta-analysis at Pfizer (see projects).
- Completed advanced coursework in Cryptography, Cloud Infrastructure, Operating Systems, Artificial Intelligence, Scala for Big Data, Mathematical Statistics, and Robotics.

## Projects

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**Multi-shot Information Extraction for Meta-analysis at Pfizer**

- Developed a multi-threaded application that extracts structured data from clinical trial results, reducing data pre-processing time by 20x.
- Tech: Python, AWS Bedrock, FastAPI, Angular

- <https://nicholsonjf.com/hectre/>

### **Using Akka Streams to Process MBTA Predictions**

- Built a streaming data pipeline consuming real-time MBTA arrival data, throttling and persisting predictions for streaming analytics and distributed systems.
- Tech: Scala, Akka
- <https://nicholsonjf.com/mbta-arrivals/>

### **Implementation and Comparison of Navigation Algorithms**

- Implemented and benchmarked multiple path-finding algorithms for robotics/AV contexts, analyzing performance tradeoffs.
- <https://nicholsonjf.com/navigation-algorithms/>
- Tech: Python, Pandas, A\*, BFS, Beam Search

### **Harvard Chan School Academic Profiles**

- Designed and built an automated generation of thousands of faculty/researcher profiles with PHP, JavaScript, and MySQL, replacing a manual content management system.
- Tech: PHP, JavaScript, MySQL, Bootstrap
- <https://nicholsonjf.com/academic-profiles/>