

# Jonathan S. Brown

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## PROFESSIONAL EXPERIENCE

**Senior Data Scientist**, HeadSpin Inc.

Apr 2022 – Present

**Data Scientist**, HeadSpin Inc.

Jan 2020 – Apr 2022

- Implemented and maintained (Python+Go) dozens of **customer-facing metrics and APIs** for detecting, diagnosing, and resolving critical performance issues. Analysis operated on video streams, audio streams, and network packet streams. Results were surfaced via **HTTP and/or WebSocket endpoints**.
- Redesigned the core business logic for a flagship data product, eliminating unnecessary computation and dramatically **reducing load times of customer facing resources**. This was critical for **scaling the core suite of analyses** that run on the HeadSpin platform.
- Implemented and maintained internal APIs and UIs responsible for **business-critical operations**. Use cases included surfacing data to support usage-based billing (Python+React), as well as handling requests for new customer hardware deployments (Python+Vue). These services replaced error-prone spreadsheet driven processes and **provided auditing and alerting of operational data** crucial for scaling business operations.
- Collaborated with colleagues daily to develop features necessary for **meeting customer delivery deadlines and maintaining platform health**. This required coordination across multiple teams with divergent responsibilities and levels of seniority. Leveraged Confluence/Jira for project scoping, planning, and tracking.

**Insight Data Science Fellow**, Insight

Sept 2019 – Dec 2019

- Deployed a web-based application (Django) exposing video game player-base metrics and a draft recommendation engine with the goal of **reducing player churn** by making the game more accessible.
- Mined data from hundreds of thousands of matches and trained **logistic regression** and **XGBoost** models on a curated set of features in order to predict game outcomes with **75% accuracy**.

**Postdoctoral Scholar**, UC Santa Cruz

Aug 2018 – Aug 2019

- Deployed a web application (Django) to automatically archive, explore, and retrieve spectroscopic data, enabling **reproducible science** with high quality datasets comprising **tens of thousands of astronomical images**.
- Deployed a web application (Django) to facilitate distributed follow-up efforts of astrophysical transients. Estimated detection probabilities by combining disparate data sources into a **probability distribution** using kernel density estimation and **sampling mock events** from the resulting distribution.

**Graduate Student Researcher**, The Ohio State University

Aug 2013 – July 2018

- Enabled the accurate measurement of key physical properties of hundreds of thousands of galaxies by developing **empirical, data-driven, non-parametric models** based on features in spectroscopic data.
- Characterized the physical properties of rare astrophysical phenomena by connecting imaging data, spectroscopic data, and intuitive models via **non-linear regression** and **MCMC** techniques.

## EDUCATION

**Ph.D. in Astronomy**, The Ohio State University

July 2018

**M.S. in Astronomy**, The Ohio State University

July 2016

**B.S. w/ Highest Honors in Astrophysics**, University of Michigan

May 2013

**B.S. in Interdisciplinary Physics**, University of Michigan

May 2013

## TECHNICAL SKILLS

Software: Python, Go, JavaScript, MySQL/Postgres, Redis

Packages: NumPy, Pandas, Scikit-learn, Click, Matplotlib, D3, Gopacket, OpenCV, Tesseract, Keras

Web: Tornado, Django, FastAPI, Go net/http, Gorilla, Vue, React

Cloud/DevOps: Docker, AWS/boto3, Traefik