

JAMES M. IRVING, PH.D.

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SUMMARY

Versatile neuroscience-turned-data scientist with expertise in neuroscience research and a strong foundation in experimental design and cognitive neuroscience. Proven ability to apply advanced data science techniques, including statistical modeling, machine learning, and data visualization, to extract valuable insights from complex datasets. Proficient in Python programming and proven ability to rapidly master new technologies and programming languages, which facilitates effective interdisciplinary collaboration and promotes robust, data-driven decision-making processes. Possesses a keen analytical mindset and problem-solving skills honed through successful transitions between disciplines. Demonstrates commitment to continuous learning and innovation, aiming to address scientific challenges and contribute to transformative advancements in both neuroscience and data science.

SKILLS

- Data Analysis
- Statistical Modeling
- Machine Learning
- Data Visualization
- Experimental Design
- Quantitative Research Methods
- Time Series Analysis
- Signal Processing
- Cognitive Neuroscience
- Behavioral Analysis
- Database Management
- Pattern Recognition
- Python Programming
- Deep Learning
- Natural Language Processing
- AI/LLM Model Implementation
- Adaptive Communication Style
- Problem Solving & Critical Thinking

EXPERIENCE

Curriculum Writer - Data Science

Coding Dojo | Remote | Mar 2023-Jan 2024

- Authored and delivered three advanced data science courses covering Time Series Modeling, NLP, and Model Deployment to facilitate skill acquisition for over 100 learners.
- Enhanced and extended the curriculum of a 16-week boot camp to a 24-week program, resulting in a 50% increase in instructional depth and engagement.
- Developed and implemented Monday.com boards, including public forms and executive-facing Gantt charts, to automate internal workflows and streamline curriculum management, resolving over 100 issues.
- Integrated APIs, Web scraping, and Computer Vision (CNNs) into course content, fostering practical skill development and aligning with industry demands in data science and machine learning.

Data Science Instructor | Remote November 2021 - March 2023

- Achieved outstanding Net Promoter Scores (NPS) exceeding 90% through the delivery of engaging live lectures, demonstrating effective communication and pedagogical skills.
- Implemented automated tools for administrative tasks, reducing student onboarding time from 5 hours to a mere 2 minutes, optimizing operational efficiency.
- Authored and delivered a highly acclaimed 4-week course with a perfect NPS rating, showcasing expertise in curriculum development and instructional delivery.
- Designed and presented over 16 interactive live lectures and code-along projects, significantly enhancing student participation and fostering a dynamic learning environment.

Data Science Instructor

Flatiron School | Remote | Oct 2019-Oct 2021

- Mentored and supervised 60+ students to successfully transition into data science, achieving a high post-program employment rate.
- Led and conducted 90-minute study groups weekly, accumulating over 270 hours of recorded lessons, enhancing student comprehension and engagement.
- Spearheaded the development and implementation of the "Flex" boot camp program, refining instructional design and delivery methods to meet diverse learning needs.

- Established three student-progress-tracking Looker dashboards, providing real-time insights into student performance and facilitating timely intervention strategies.
- Implemented data-driven approaches to enhance program efficacy, resulting in improved student outcomes and program satisfaction.

Laboratory Manager

University of Maryland, School of Medicine | Baltimore, MD | Jul 2017-Aug 2018

- Ensured full compliance with regulatory standards as the lab's public representative, achieving a flawless record with all 4 inspections passing without demerits.
- Negotiated and finalized a technical hardware contract worth approximately \$100,000 with vendors, optimizing procurement processes and ensuring cost-effectiveness.
- Managed and administered over 20 TBs of both cloud and local data storage systems, ensuring data accessibility, security, and efficient retrieval.
- Successfully overhauled mouse colony management procedures, resulting in a remarkable 60% reduction in housing costs, from approximately \$3.8k/month to \$1.5k/month, through strategic resource allocation and process optimization.

Postdoctoral Research Fellow | Baltimore, MD June 2015 - July 2017

- Spearheaded neuroscience research endeavors, employing cutting-edge techniques such as in vivo optogenetics and electrophysiology recordings, resulting in groundbreaking insights into neural functioning in awake and behaving mice.
- Developed approximately 30 custom analysis scripts in languages including Matlab, NexScript, MedPC, and Arduino, enhancing data processing capabilities and facilitating comprehensive statistical analyses of large datasets.
- Mentored and guided a diverse team comprising 1 postdoc, 2 Ph.D. students, 3 lab techs, and 3 undergraduate volunteers, fostering an environment of collaborative learning and achieving research excellence.
- Demonstrated self-directed learning by mastering Matlab programming and independently creating custom-designed analysis programs for large datasets in multiple programming languages, streamlining data interpretation processes and enhancing research efficiency.

DATA SCIENCE PROJECTS

Amazon Reviews NLP Analysis - [GitHub Link](#)

Natural Language Processing Analysis, Modeling, and Deployment with Actionable Insights

- Designed and deployed a user-centric Streamlit dashboard, integrating live sentiment predictions and interactive analysis of trends to guide strategic decision-making.
- Conducted sentiment analysis on over 5 million Amazon Grocery & Gourmet Food reviews, utilizing NLP and machine learning techniques (Logistic Regression, Tf-idf vectorization) to identify key factors affecting customer satisfaction and achieve 95% accuracy in sentiment classification.
- Employed Hugging Face transformers and langchain/ChatGPT within the dashboard for summarization and insights, translating vast consumer feedback into actionable product enhancement strategies.

How to Make a Successful Movie – [GitHub Link](#)

Constructing and analyzing an extensive movie database with machine-learning-based insights + Tableau Dashboard

- Engineered a comprehensive MySQL database integrating IMDB and data from TMDB API for data-driven insights.
- Designed an interactive Tableau dashboard to communicate findings to stakeholders, enhancing decision-making processes (see [GitHub link](#)).
- Applied A/B Testing to make informed recommendations on what movies are successful at the box office.

How to Spot a Troll – [GitHub Link](#)

Classifying Russian Troll Tweets vs Authentic Tweets

- Conducted EDA on 3M tweets, identifying patterns indicative of non-authentic activity by Russian Troll Farms.
- Produced alternative final models - one optimized for speed, one for accuracy.

Recidivism Risk Assessment – [GitHub Link](#)

Classifying which released prisoners in Iowa will return to a life of crime using Next-Gen Gradient Boosted Trees

- Built a classification model to predict recidivism risk among released prisoners with over 70% accuracy (via scikit-learn and Catboost).
- Researched Iowa's state sentencing guidelines and sentencing enhancements to engineer new numerical features to capture the severity of the crimes committed and the duration of sentences.

EDUCATION

Data Science (Full-Time) February 2019 - August 2019

Flatiron School

Doctor of Philosophy August 2009 - May 2015

Neuroscience

University of Maryland, Baltimore, MD

Bachelor & Master of Science August 2004 - December 2008

Neuroscience

Tulane University, New Orleans, LA

PROFESSIONAL SKILLS

Programming:

- Python & Object-Oriented Programming
- SQL (MySQL, SQLAlchemy)
- MATLAB
- PyPi Package Publishing
- HTML / CSS
- NexScript programming
- MedState Notation
- Git/GitHub

Data Analysis

- Extract, Transform, Load (ETL) (numpy, pandas),
- AB Testing (scipy, statsmodels, GraphPad Prism, SPSS)
- Machine Learning (scikit-learn, Keras, Catboost, XGBoost),
- Database Administration

Software:

- Adobe Illustrator
- Adobe Photoshop
- GraphPad Prism
- Microsoft Office (Word, Excel, PowerPoint)
- NeuroExplorer
- Plexon OfflineSorter
- VS Code
- Jupyter Notebook/Lab

Visualization/Dashboarding

- Plotly / Dash
- Tableau
- Streamlit Deployment
- Seaborn / Matplotlib
- Looker

Natural Language Processing:

- nltk
- spaCy
- Tensorflow
- Hugging Face transformers
- LangChain