Noah Guzmán

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PROFESSIONAL EXPERIENCE

California Institute of Technology Pasadena, CA

Ph.D. Research and Data Analyst September 2019 – Present

- Devise new metrics and data dimensions to evaluate project success. Assess prototype metrics with data pipelines.
- Distill metrics into reports and dashboards to communicate conclusions to technical and non-technical audiences.
- Design and execute A/B experiments with dozens of users, improving app design and user flow. Implement data quality checkpoints to avoid common pitfalls and improve results evaluation.
- Develop Bayesian models and reinforcement learning algorithms using Python and Stan. Uphold rigorous standards for statistical inference and hypothesis testing by using robust model validation methods.
- Design and deploy studies as interactive apps using HTML, JavaScript, and Google Firebase. Construct data pipelines to collect anonymized user data to Google Firestore and SQL databases and run queries to extract data.
- Iteratively improve and automate experimental and analytical processes leading to higher quality of experimental measurements and data sets. Mentor undergraduates in experimental and data science methods.
- Employed Python implementations of signal processing and machine learning algorithms to visualize and quantify changes in audio data to support development of neurological techniques.
- Analyzed brain imaging video data using Python computer vision algorithms to drive new data strategies for future studies.
- Conduct literature reviews and coordinate research plans, enabling my team to execute projects efficiently.
- Recruit hundreds of participants for experiments and surveys online to reach a cross-cultural population.

Data Scientist and Scientific Consultant (Freelance) September 2019 – Present

- Collaborate with psychologists and philosophers worldwide to provide neuroscientific expertise on publications.
- Developing a Python toolbox for multifractal analysis, addressing gaps in existing Python libraries.
- Designed and taught curriculum for a university neuroscience course at Caltech utilizing cutting-edge educational technology, resulting in the production of a Jupyter Book conveying course content and code examples.

Brandeis University Waltham, MA

Research Assistant, Marder Lab Jan. 2017 – Aug. 2019

- Developed a novel metric to quantify dynamical systems, advancing the data science discipline.
- Designed neural network models and programmed simulations and analyses in Matlab, Java, Python, and Julia.
- Fit thousands of high-dimensional models using genetic algorithms to enable mass-consumption by other teams.
- Communicated actionable insights and recommendations in concise conference presentations utilizing compelling visualizations of research information, resulting in increased knowledge for hundreds of scientists.
- Collaborated effectively with cross-functional research teams and external partners to understand and align goals.

California State University Long Beach Long Beach, CA

Research Assistant, Tsai Lab Aug. 2015 – Aug. 2016

- Quantitatively analyzed biological data using Microsoft Excel and SPSS leading to the discovery of several important sex differences in brain protein expression.

SKILLS

Programming and Markup Languages: Java, Python (Pandas, CmdStan, Scikit-learn, Numpy, PyTorch, Tensorflow, sqlite3, Matplotlib, PySpark), Stan, Julia (Flux, Turing, Plots, Plotly), HTML, JavaScript (p5.js, SurveyJS), Mathematica, MATLAB, Shell scripting (Bash, SLURM), SQL, Idyll, LaTeX, Markdown.

Software and Services: Linux, Unity, Fiji, Sound Analysis Pro, Microsoft Excel, Google Firebase, Amazon Web Services, Git, Qualtrics, Prolific, SPSS, Figma, Inkscape, TikZ, PowerBI, SQLite, PostgreSQL, Spark, Hadoop, Tableau.

EDUCATION

California Institute of Technology Pasadena, CA

Master of Science in Computation and Neural Systems (Expected December 2022)

Brandeis University Waltham, MA

Combined Bachelor of Science/Master of Science in Neuroscience, Minor in Mathematics