

# Noah Guzmán

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## PROFESSIONAL EXPERIENCE

### California Institute of Technology

Pasadena, CA

*Ph.D. Research and Data Analyst*

September 2019 – Present

- Design and develop video games and interfaces for experimental psychology studies using HTML and JavaScript. Prototype app interfaces and graphics using Figma and Unity. Deploy studies as interactive apps via cloud platforms, executing projects in a timely manner to meet deadlines and manage multiple priorities.
- Plan and conduct usability and play tests with dozens of users, improving video game and interface designs.
- Conducted digital and hybrid ethnographic studies with users from diverse backgrounds, including remote user interviews, gathering user requirements and translating insights into feature requirements and better experiences.
- Develop Bayesian models of user behavior using Python and Stan. Uphold rigorous standards for statistical inference and hypothesis testing by using robust model validation methods.
- Code and design interactive web applications to conform to current ISO accessibility standards and HHS usability guidelines across multiple platforms. Take independent ownership of design, programming, and research work.
- Program artificial agents and compare their behavior to human-in-the-loop tests, providing insights into users' mental models and sources of human error. Use data to develop user profiles and intelligent system interactions.
- Write research and design process documentation for consumption by regulatory agencies, enabling quick turnaround on research projects and adherence to usability and ethics protocols.
- Edit and annotate hours of video recordings of experimental test subjects and document videography and test processes, allowing other teams to readily reproduce research.

### Human-Centered Scientific Consultant (Freelance)

September 2019 – Present

- Programmed and designed interfaces for a Python library for multifractal analysis, providing human-computer interaction researchers with a useful computational tool.
- Instructed and designed the curriculum and interactive course content for a tutorial class on neuroengineering at the California Institute of Technology.

### Brandeis University

Waltham, MA

*Research Assistant, Marder Lab*

Jan. 2017 – Aug. 2019

- Conveyed complex concepts and actionable research results to non-technical peers utilizing compelling stories and visualizations, driving innovation in the field and increasing adoption of theoretical frameworks.
- Developed robust and interdisciplinary project proposals for cross-functional stakeholders and research teams.
- Designed neural network and control system models and programmed simulations and analyses in Matlab, Java, Python, and Julia.

### California State University Long Beach

Long Beach, CA

*Research Assistant, Tsai Lab*

Aug. 2015 – Aug. 2016

- Quantitatively analyzed psychobiological data using statistical methods in Microsoft Excel and SPSS. Developed the information architecture and graphics for presenting this rich research data to stakeholders simply and clearly.

## 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

GPA: 3.8

### Brandeis University

Waltham, MA

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

### California State University, Long Beach (Transferred)

Long Beach, CA

Pursued two years of a Bachelor of Arts in Graphic Design prior to Brandeis University.

*Relevant coursework: fundamentals of graphic design, industrial design, physical and digital media*