

Jake Ziegler

Firefighter at Hygiene Fire Department

jake.ziegler.pena@gmail.com

www.horchata.dev

+1 303 905 5526



RELEVANT EXPERIENCE



Hygiene Fire Department
Firefighter
2024 - Present

Responded to EMS and fire calls throughout Boulder County, providing emergency services and support. Procured donations from various groups to help with building a new station.



CU Boulder
Undergraduate Researcher
2022 - 2025

Investigated prefrontal circuits involved in behavioral control, with an emphasis on dominance-related mechanisms and their role in long-term resilience. Led a personal sub-project focused on behavioral automation.



Habitat for Humanity
Volunteer
2024 - Present

Supported home construction and ReStore operations with Habitat for Humanity, assisting in building, site prep, and material handling to promote affordable housing.



CU Boulder
Learning Assistant
2022

Taught at recitation sessions, ran office hours, and answered emails to support student learning for calculus-based physics 1.

EDUCATION AND CERTIFICATES

Bachelors Degree, CU Boulder
Double Major: Neuroscience and Psychology
2020-2025

Minor, CU Boulder
Computer Science
2022 - 2024

Hazmat Awareness and Operations, BCFFA
Certified in HAZMAT skills and safety.
2025

Firefighter 1, BCFFA
Certified in firefighting skills and safety.
2025

EMT-IV, Denver Health
Certification in emergency medical care and support.
proj. 2025

TCCC-ASM, 3CPR
Certification in tactical medical care and support.
proj. 2025

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SKILLS

Data Analytics

Experienced in analyzing complex datasets through EDA, building models, and visualizing trends.

Technical Skills

Proficient in Python, MATLAB, and C++ for a range of projects, with hands-on experience working with various hardware components.

Problem Solving

Experienced in problem-solving using a structured and scientific approach in both dynamic and research-focused environments.

Behavioral Neuroscience

Experienced in designing and conducting experiments, analyzing behavior, and performing rodent surgeries, including microinjections, cannula surgeries, and perfusions. Proficient in utilizing viral vectors, pipetting, cryostat sectioning, and animal handling.

Soft Skills

Adaptable with strong communication, teamwork, and leadership skills, developed through varied experiences.

RELEVANT COURSEWORK

- Advanced Cognitive Psychology
- Cellular Biology
- Clinical Neuroscience
- Data Mining
- Introduction to Data Science
- Molecular Biology
- Neural Circuits of Learning
- Neurobiology of Learning and Memory
- Neurobiology of Stress
- Neuropharmacology

POSTERS, GRANTS, AND SCHOLARSHIPS

- **Jacob Ziegler**, Psychedelic Science Conference 2025, Full-ride scholarship for in-person attendance.
- Costanza-Chavez G, Lafehr V, **Ziegler JA**, Ahrens S, Maier SF, Baratta M. (August, 2023). Controllable stress increases performance in both the social and non-social tube test. European Brain and Behaviour Society, Amsterdam, Netherlands.
- **Ziegler JA**. (June, 2023). Automating the Forced Swim Test and Stressor Controllability's Effect on Instrumental Effort. Undergraduate Research Day. Wilderness Lab Group, Boulder, CO.
- LaFehr VK, Costanza-Chavez GW, **Ziegler JA**, Potter GJ, Coleman PT, Martin HN, Maier SF, Baratta MV. (December, 2022). MDT-PL circuit is required for control-induced dominance. Front Range Neuroscience Group, Fort Collins, CO.

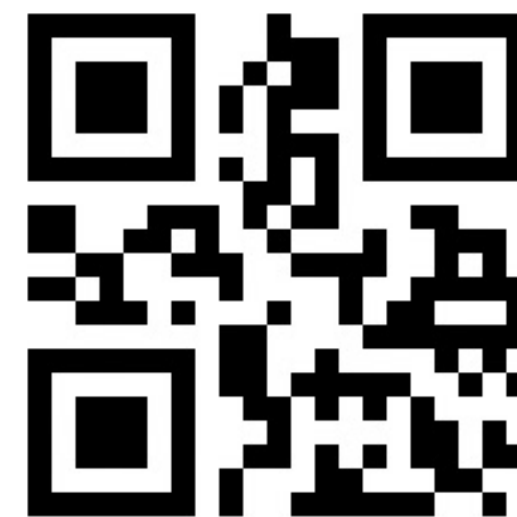
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POSTERS, GRANTS, AND SCHOLARSHIPS (CONT.)

- **Jacob Ziegler**, Undergraduate Research Opportunities Program (UROP) Individual Grant for “Deconstruction of the impact of stressor controllability on dominance”, Academic Year 2023-24.

PROJECTS

Sprague Vision: A Solution to Behavioral Scoring

Baratta Lab

Designed and constructed a ceiling-mounted fixture to monitor animal behavior. Captured data was processed using convolutional neural networks and prebuilt analysis software, producing a comprehensive behavioral data profile. Visit www.horchata.dev for more information.

Exploration of Behavioral Dominance

Baratta Lab

Investigated the factors influencing dominance across various animals by analyzing behavioral data. This project explored how variables such as controllable stress, neural circuitry, and various environmental conditions can contribute to dominance patterns.

Baratta Lab Website

Baratta Lab

Created a website to provide an outward-facing view of the lab for grant reviewers and external collaborators. The site was designed to communicate the lab's ongoing research, goals, and achievements, improving grant approval outcomes. See www.horchata.dev for more information.

Classification Neural Networks in Health

Personal

Designed and trained several classification networks using open-source data, optimizing them using various metrics. I also developed training pipelines to automate training, reducing time to a fully functioning network. See www.horchata.dev for more information.

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PROJECTS (CONT.)

HorchataOS

Personal

Designed and built a personal portfolio website styled to emulate the look and feel of Windows 98 OS. The project showcases my work in a creative and interactive format, utilizing retro aesthetics while integrating modern functionality. See www.horchata.dev for more information

Instagram Bot Farm

Personal

Developed a system of bots to collect and analyze data from Instagram, including comments and various other metrics. This project involved analyzing the trajectories of posts received to understand how engagement patterns influence the posts received. See www.horchata.dev for more information.