

FELIPE PARODI

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EDUCATION

University of Pennsylvania

2026

Ph.D. in Neuroscience — Computational Neuroscience Initiative

Philadelphia, PA

Co-advised by Konrad Kording and Michael Platt.

Dissertation: *Applications of Deep Learning for Primate Neuroethology: Spatial, Behavioral, and Social Coding in Macaque Mid-Superior Temporal Sulcus.*

Penn AI Fellow; William Fontaine Fellow.

University of Miami

2019

B.S. in Neuroscience and B.A. in Economics

Coral Gables, FL

Iron Arrow Honor Society.

ADDITIONAL TRAINING

Deep Learning & Reinforcement Learning Summer School — The Vector Institute,

2024

Toronto, ON

Cajal Training: Quantitative Approaches to Behaviour — Champalimaud Foundation,

2022

Lisbon, Portugal

ACADEMIC APPOINTMENTS

Postdoctoral Researcher

May 2026 – Present (paused)

Wharton Neuroscience Initiative and Platt Lab, University of Pennsylvania

Philadelphia, PA

Study how latent representations shape behavior across brains and AI; built Truco-Bench, a controlled multi-agent LLM benchmark for covert signaling under an overseer (COLM '26). Apply mechanistic interpretability to computer vision, testing what vision transformers represent and how they use it (CVPR HOW '26, ICML MechInterp '26). Supervise research technicians and Ph.D. students across collaborations in neuroeconomics, medicine, psychology, and business.

Ph.D. Researcher

Sep 2020 – Apr 2026

Kording and Platt Labs, University of Pennsylvania

Philadelphia, PA

Showed that mid-superior temporal sulcus (mSTS) encodes self-location, behavioral state, and social prediction errors during natural interaction; simultaneous recordings from two interacting macaques revealed inter-brain synchrony aligned with jointly embedded neural manifolds. Designed and built a 30-camera hardware-synchronized arena over three years; recorded and spike-sorted ~6,000 mSTS units with 128-channel depth arrays and wireless loggers across 25 sessions in freely moving macaques, and ran intranasal oxytocin and arginine vasopressin manipulations. Built Python/PyTorch pipelines for detection, identity tracking, whole-body 3D pose, GPU triangulation, multimodal synchronization, and neural population decoding across spikes, LFP, kinematics, vocalizations, and behavioral state. Mentored undergraduate and junior doctoral trainees.

Leadership Alliance Summer Research Intern

Human Neuroeconomics, University of Pennsylvania

2017 – 2018

Philadelphia, PA

Regression analysis of smartphone usage and delay discounting; designed explore-exploit experiments under physiological stress.

INDUSTRY RESEARCH

Safety Research Intern – Waymo

Human Behavior Analytics

Jun 2026 – Oct 2026

Mountain View, CA

Validate computational models of human road-user behavior (implemented as simulated agents) against human data obtained from driving-simulator studies and/or naturalistic driving logs.

Data Science Research Intern – Google (YouTube)

YouTube Shorts

Jun 2024 – Sep 2024

San Bruno, CA

Developed the statistical pipeline that decided when LLM-judge ratings of LLM-generated content could stand as gold labels versus be routed to human annotation. Adopted in production.

Intern, Machine Learning for Conservation (Contract) – Colossal Biosciences

May 2024 – Sep 2024

Built and deployed an end-to-end deep-learning pipeline for wild elephant detection, individual re-identification, and tracking from aerial drone data; piloted in the field with Save the Elephants.

Psychometrician – First Choice Neurology Clinic

Data Science for Health

Jan 2019 – Jul 2020

Florida

Ridge-regression modeling of cognitive dysfunction in Anglo-Saxon and Hispanic adults.

PUBLICATIONS

JOURNAL ARTICLES

- [J1] Ammar, E., Sharma, A., August, T., Bicknell, J. E., Boughey, K., Dunford, C. E., Driscoll, D. A., Fiennes, S., Lopatin, J., Hartley, M., Hillier, J., Martin, P. A., O'Connor, R. S., **Parodi, F.**, Simmons, B. I., Struebig, M. J., Thompson, R. M., Ardiantiono, Yoh, T., Sutherland, C., & Gordon, R. "Artificial intelligence and decision support in applied ecology." *Journal of Applied Ecology* 63(6) (2026).
- [J2] **Parodi, F.**, Kording, K. P., & Platt, M. L. "Primate neuroethology: a new synthesis." *Trends in Cognitive Sciences* 30(4), 364–378 (2026).
- [J3] Testard[†], C., Tremblay[†], S., **Parodi, F.**, et al. "Neural signatures of natural behaviour in socializing macaques." *Nature* 628(8007), 381–390 (2024).
- [J4] Barack[†], D., Ludwig[†], V., **Parodi, F.**, et al. "Attention deficits linked with proclivity to explore while foraging." *Proceedings of the Royal Society B* 291(2017) (2024).
- [J5] Baker, B., Liu, T., Matelsky, J., **Parodi, F.**, et al. "Computational kinematics of dance: distinguishing hip hop genres." *Frontiers in Robotics and AI* 11, 1295308 (2024).

[†] denotes shared first authorship among the authors so marked.

PREPRINTS AND MANUSCRIPTS UNDER REVIEW

- [P1] **Parodi, F.**, et al. "A predictive neural basis for natural primate sociality." In preparation (2026).
- [P2] **Parodi, F.**, et al. "Mid-superior temporal sulcus encodes spatial context and behavioral state in freely moving macaques." bioRxiv (2026). Under second review at *Nature Communications*.

- [P3] **Parodi, F.**, et al. “PrimateFace: A Machine Learning Resource for Automated Face Analysis in Human and Non-human Primates.” bioRxiv (2025). Under review at *Nature Methods*.
- [P4] Segado, M., **Parodi, F.**, et al. “Grounding Intelligence in Movement.” arXiv:2507.02771 (2025).
- [P5] Barack, D., **Parodi, F.**, et al. “Information gathering explains decision dynamics during human and monkey reward foraging.” bioRxiv (2023).
- [P6] Matelsky, J. K., **Parodi, F.**, et al. “A large language model-assisted education tool to provide feedback on open-ended responses.” arXiv:2308.02439 (2023).

PEER-REVIEWED WORKSHOP PAPERS

- [W1] **Parodi, F.**, Matelsky, J. K., & Segado, M. “Zero-Ablation Overstates Register Content Dependence in DINO Vision Transformers.” HOW Workshop, CVPR 2026 (arXiv:2604.14433).
- [W2] **Parodi, F.**, & Segado, M. “Sparse Groundings: A Benchmark for Auditing Visual Representation Claims.” Mechanistic Interpretability Workshop, ICML 2026.
- [W3] **Parodi, F.** “Truco-Bench: Covert Signaling in LLM Agents and What Black-Box Monitors Miss.” Actionable Interpretability Workshop, COLM 2026.
- [W4] **Parodi, F.**, et al. “Vision-language Models for Decoding Provider Attention During Neonatal Resuscitation.” CVPR Workshop (CVPM) 2024.

DISSERTATION

- [D1] **Parodi, F.** “Applications of Deep Learning for Primate Neuroethology: Spatial, Behavioral, and Social Coding in Macaque Mid-Superior Temporal Sulcus.” Ph.D. dissertation, University of Pennsylvania (2026).

RESEARCH SOFTWARE

PrimateFace — 500K+ image, 60+ genera cross-species primate face benchmark and toolkit for detection, tracking, gaze-related analysis, and comparative vision modeling. Ships as a pip-installable library, a GUI pseudo-labeling application, seven Colab tutorials, and a hosted [demo](#).

neogaze — semantic gaze decoder for neonatal resuscitation video using SAM2 and vision-language models; 91% zero-shot and 98%+ fine-tuned classification. In use by the Penn neonatology team.

solo_mSTS_parodi2026 — reproducible code for neural population analyses of macaque mSTS during natural behavior.

neuralbasis_socialmonkeys — analysis code for Testard[†], Tremblay[†], **Parodi**, et al. (*Nature*, 2024): wireless multi-unit recordings, population decoding, free social-interaction dynamics.

awesome-computational-primatology — curated resource connecting deep learning, computer vision, behavioral ecology, and non-human primate research.

FELLOWSHIPS AND TRAINING GRANTS

Penn AI Fellow, University of Pennsylvania	2026
Gemini Academic Program Award, Google Cloud	2025
NRSA T32 NIDCD-NIH Training Grant in Audition and Communication	2021–2023
Ford Foundation Predoctoral Fellowship — Honorable Mention	2021
Generation Google Scholarship (North America), \$10,000	2020–2021
William Fontaine Fellow, University of Pennsylvania	2020–2026

FELLOWSHIP NOMINATIONS

Google PhD Fellowship	2022
HHMI Gilliam Fellowship	2022
Microsoft PhD Fellowship	2022

AWARDS AND HONORS

Outstanding Scholars in Neuroscience Award (OSNAP), National Institutes of Health	2026
NeurIPS Travel Award, BrainBody Foundation Models Workshop	2025
Jameson-Hurvich Award, University of Pennsylvania	2022
Full Scholarship Award, SACNAS NDiSTEM Conference	2022
Iron Arrow Honor Society, University of Miami	2018
Outstanding Poster Presentation Award, ABRCMS	2017
Hispanic Scholarship Fund & The Walt Disney Company Scholar	2016, 2018
President's Scholarship, University of Miami	2015

PRESENTATIONS

PrimateFace. <i>NeurIPS Workshop on AI for Animal Communication</i> (oral)	Dec 2025
PrimateFace. <i>NeurIPS Workshop on Foundation Models for the Brain and Body</i> (poster)	Dec 2025
PrimateFace. <i>American Biological Anthropology Conference</i>	Apr 2024
PrimateFace. <i>American Physical Society Spring Meeting</i>	Mar 2024
Quantifying grooming in paired macaques. <i>Neuroethology Gordon Research Conference</i>	Aug 2023
PrimateFace. <i>CV4Animals Workshop, CVPR</i>	Jun 2023
Quantifying grooming in paired macaques. <i>APS Spring Meeting</i>	Mar 2023
Neural signatures of macaque social behavior. <i>SACNAS NDiSTEM Conference</i>	Oct 2022
Neural signatures of macaque social behavior. <i>Neurobiology of Cognition Gordon Research Conference</i>	Jul 2022
Neuroethology of primate grooming. <i>Cajal Training: Quantitative Approaches to Behaviour</i>	May 2022
Deep learning for primate movement tracking. <i>Neuromatch Conference 1.0</i>	Oct 2020

TEACHING

AI for Science Workshop — <i>Co-Lead</i> (with Konrad Kording), University of Chicago	2024
Neuroethology (undergraduate) — <i>Teaching Assistant</i> , University of Pennsylvania	2023
Deep Learning for Data Science (graduate) — <i>Teaching Assistant</i> , University of Pennsylvania	2022
Statistics for Biologists (undergraduate / graduate) — <i>Teaching Assistant</i> , University of Pennsylvania	2021–2022
Evolution & Biodiversity and Lab (PRISM) — University of Miami	2018
Teaching Assistant — Stanford Code in Place; Neuromatch Academy	

MENTORING AND SUPERVISION

Mentored undergraduate researchers and junior doctoral trainees throughout the Ph.D.

PEER REVIEW

Neuron · *Annals of the New York Academy of Sciences* · *International Journal of Computer Vision*
Cosyne · HOW: Vision Interpretability Workshop, CVPR · CV4Animals Workshop, CVPR

LEADERSHIP AND OUTREACH

IDEAL Research Affiliate, University of Pennsylvania	2023–2024
Mentor, Project Short	2020–2022
Computational Co-Chief, Brain in Briefs, University of Pennsylvania	2020–2021
Volunteer, Neuromatch Conference	2020–2021
President, SACNAS (University of Miami chapter)	2018–2019
VP of Operations, SACNAS (University of Miami chapter)	2017–2018
Co-founder, then Regional Coordinator (2018), South Florida Regional Science Bowl — the South Florida regional site of the U.S. Department of Energy National Science Bowl; 330 middle- and high-school students, \$2k+ raised	2015–2018
Director & Counselor, Camp Kesem, University of Miami	2015–2018

PRESS

“What Can a Primate Face Tell Us? A Scalable Approach to Studying Facial Expressions.” Earth Species Project, feature interview	Apr 2026
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METHODS AND TOOLS

Experimental neuroscience. Awake-behaving primate electrophysiology, 128-channel depth arrays, wireless recording, spike sorting and QC, intranasal neuropeptide manipulations, behavioral paradigm and rig design.

Programming. Python, PyTorch, NumPy, SciPy, scikit-learn, pandas, SQL, MATLAB, Git, Linux, HPC and GPU workflows.

Machine learning. Mechanistic interpretability, transformers and vision transformers, representation analysis, causal ablations and interventions, probing and model-internals analysis, computer vision, multimodal and vision-language models, pose estimation, detection and tracking, model evaluation, LLM/VLM-assisted annotation.

Quantitative. Neural decoding, population analyses, GLMs and regression, dimensionality reduction, representational similarity analysis, signal processing, statistics and time-series analysis, reproducible scientific computing.

References available upon request.