FELIPE PARODI

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OBJECTIVE

Seeking a PhD research internship role to apply my extensive experience in computer vision, neuroscience, and modeling to develop robust perception and behavior prediction models for real-world scenarios.

EDUCATION

Ph.D. in Neuroscience, Computational Neuroscience Initiative, University of Pennsylvania   2020 - 2026
Notable Honor: Generation Google Scholarship (2021)
M.A. in Statistics and Data Science, The Wharton School, Penn   2022 - 2024
B.S. in Neuroscience; B.A. in Economics, University of Miami   2015 - 2019

SKILLS

Coursework	Deep Learning, Computational Neuroscience, Big Data, Reinforcement Learning
Technical	Python, PyTorch, JAX, CUDA, HuggingFace, OpenCV, SQL, Scikit-Learn, Pandas, NumPy
Modeling	3D Object Detection, Multi-Modal Fusion, Interactive Behavior Modeling, Intention Recognition

EXPERIENCE

PhD Candidate in Computational Neuroscience   Aug 2020 - Present
University of Pennsylvania   *Philadelphia, PA*
Thesis: Novel applications of deep learning for primate neuroethology
Supervisors: Drs. Konrad P. Kording and Michael L. Platt

- Focus: I am developing cross-species behavior quantification pipelines to track facial, hand, and body landmarks in primates, aiming to enable robust deep learning-based tracking in wild and captive settings. I pair these tools with custom brain-machine interfaces to conduct wireless neurophysiology in freely behaving macaques, enabling me to investigate the neural processes underlying natural social interactions and higher-level cognition, including theory of mind.
- Computer vision: Engineered a computer vision pipeline employing pose estimation (e.g., ViT-Pose) and action recognition for robust 3D behavior quantification of multi-primate interactions.
- Neurotechnology: Developed brain-machine interface with multi-electrode arrays to wirelessly record neural activity from the superior temporal sulcus in macaque monkeys with greater SNR than commercial products.
- Leadership: Mentored four graduate students in computational neuroscience and primatology, fostering their skills in neural signal processing, data analysis, and machine learning.

PROJECTS

PrimateFace. Curated a large-scale computer vision dataset containing 500,000 cross-species primate images with face bounding box, facial landmark, and facial action unit labels to advance cross-discipline automated facial expression recognition in primates.

Neonatologist Gaze Analysis. Developed real-time multi-modal deep learning system combining eye-tracking with light-weight (MobileViT) and vision-language (CLIP) models to enable automated semantic analysis of physician gaze during neonatal resuscitations, achieving 98% classification accuracy, thereby enhancing team coordination and patient safety.

NOTABLE PUBLICATIONS

- Testard, C.*, Tremblay, S.*, **Parodi, F.**, DiTullio, R., Acevedo-Ithier, A., Gardiner, K., Kording, K., Platt, M. (2023). *Neural signatures of natural behavior in freely-socializing macaques.* Under review at Nature. Available on bioRxiv. * denotes shared authorship.
- Matelsky, J.K., **Parodi, F.**, Liu, T., Lange, R.D., Kording, K.P. (2023). *A large language model-assisted education tool to provide feedback on open-ended responses.* Available on arXiv.