FELIPE PARODI

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OBJECTIVE

Seeking a research internship role to apply my strong foundation in machine learning and computer vision, gained through my PhD research to make meaningful contributions to innovative projects and help shape the future of multi-modal AI.

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 for Data Science, Computational & Theoretical Neuroscience, Big Data
Technical	Python, PyTorch, CUDA, HuggingFace, OpenCV, SQL, Git, Scikit-Learn, Pandas, NumPy
Modeling	Signal Processing, Neural Decoding, MoCap, Time Series Forecasting, Clustering

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 datasets to quantify 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., HRNet and 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.