ARIEL FELDMAN

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EDUCATION

Carnegie Mellon University Expected March 2026
Ph.D. Candidate in Neural Computation

Rice University 2020
B.A. in Computer Science & Cognitive Sciences (Neuroscience minor)

SKILLS

Programming Languages: *Advanced* – Python; *Intermediate* - MATLAB, Java, C, R
Analysis: Time series analysis, spatial filtering, dimensionality reduction, partial information decomposition
Tools: Git, Jupyter, MNE, VSCode, Arduino, EAI Tactors, NumPy, SciPy

INDUSTRY EXPERIENCE

Meta Reality Labs, *Research Scientist Intern for Neuromotor Control* May 2025 – Present

- Investigating the relationship between the quality of human movement and underlying physiological signals.
- Designing and conducting experiments exploring human motor control, with a focus on capturing ecologically valid paradigms to develop robust and generalizable decoding models.

RESEARCH EXPERIENCE

Carnegie Mellon University, *Graduate Researcher with Douglas J. Weber* Aug. 2020 – Present

- Leading a study with Synchron on proprioception in the human central and peripheral nervous systems, demonstrating how haptic feedback improves motor control and facilitates brain-computer interface control for patients with paralysis.
- Collaborating with Synchron to assess and enhance signal quality on the Stentrode through applied machine learning techniques such as Independent Component Analysis and regression in their US clinical trial.
- Co-designed transnasal brain stimulation technology for patients with disorders of the reward system, leading to a patent submission.
- Applied information theory to analyze grid cell encoding, demonstrating the utility of distributed source coding techniques for neural signal interpretation.

Rice University, *Undergraduate Researcher with Caleb Kemere & Jacob T. Robinson* Jan. 2017 – Jan. 2020

- Fabricated micro-drive arrays for hippocampal stimulation experiments to study sharp-wave ripple complexes.
- Built algorithms to predict when a sharp-wave ripple complex would occur to reduce stimulation latency.
- Designed and implemented motion tracking analyses to validate behavioral effects of a novel neural stimulation device, contributing to a publication in *Neuron*.

SELECTED PUBLICATIONS

- K. Kacker, N. Chetty, **AK. Feldman** et al. "Motor activity in gamma and high gamma bands recorded with a Stentrode from the human motor cortex in two people with ALS". *Journal of Neural Engineering*, **2025**. doi: 10.1088/1741-2552/adbd78
- **AK. Feldman** et al. "Information-theoretic tools to understand distributed source coding in neuroscience". Special Issue on "Data, Physics, and Life Through the Lens of Information Theory", *IEEE Journal on Selected Areas in Information Theory*, **2024**. doi: 10.1109/JSAIT.2024.3409683

PATENTS

- M. Forssell, …, **AK. Feldman** et al. "Method for Non-Invasive or Minimally-Invasive Stimulation of Deep Brain Targets", Application number 18/742524 **[pending]**.

AWARDS

Henry L. Hillman Presidential Fellowship (2023), Carnegie Prize in Mind & Brain Sciences PhD Fellowship (2021), R.K. Mellon Presidential Fellowship (2020), Cornell NeuroNex REU Fellow (2019), Rice Undergraduate Research Scholars Program (2018).