

ARIEL FELDMAN

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EDUCATION

Carnegie Mellon University

Ph.D. Candidate in Neural Computation

Pittsburgh, PA

Expected May 2025

Rice University

B.A. in Computer Science & Cognitive Sciences

Houston, TX

Minor in Neuroscience

2020

SKILLS

Programming Languages: Advanced - Python; Intermediate - Java, C, MATLAB, R

Analysis: Spatial filtering, blind source separation

Languages: English (Native Speaker), Spanish (Proficient)

RESEARCH EXPERIENCE

Carnegie Mellon University, Graduate Researcher

Pittsburgh, PA

Advisor: Douglas J. Weber

Aug. 2020 - Present

- Collaborating with Synchron to assess and enhance signal quality on the Stentrode.
- Spearheaded a collaboration with Allegheny Health Network's epilepsy unit to investigate multi-region information transfer.
- Co-designed transnasal brain stimulation technology, 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

Houston, TX

Advisors: Caleb Kemere & Jacob T. Robinson

Jan. 2017 - Jan. 2020

- Fabricated micro-drive arrays and performed rodent brain implants for hippocampal stimulation experiments to study sharp-wave ripple complexes.
- Designed and implemented motion tracking analyses to validate a novel neural stimulation device.

Cornell University, Undergraduate Researcher

Ithaca, NY

Advisors: Jesse Goldberg & Mert Sabuncu

Summer 2019

- Developed a pipeline to capture and analyze markerless motion data for behavior identification in budgerigars during interactions.

SELECTED PUBLICATIONS

- **Ariel K. Feldman**, Praveen Venkatesh, Douglas J. Weber, Pulkit Grover, "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**.
- Kriti Kacker, Nikole Chetty, **Ariel K. Feldman**, James Bennett, Peter E. Yoo, David Lacomis, Noam Y. Harel, Raul G. Nogueira, Shahram Majidi, Nicholas L. Opie, Jennifer L. Collinger, Thomas J. Oxley, David F. Putrino, Douglas J. Weber, "Spectral features of endovascular ECoG signals recorded from a Stentrode in the human motor cortex". *Journal of Neural Engineering*, **[submitted]**.
- Amanda Singer, Shayok Dutta, Eric Lewis, Ziyang Chen, Joshua C. Chen, Nishant Verma, Benjamin Avants, **Ariel K. Feldman**, John O'Malley, Michael Beierlein, Caleb Kemere, Jacob T. Robinson, "Magnetolectric materials for miniature, wireless neural stimulation at therapeutic frequencies". *Neuron*, **2020**.

PATENTS

- Mats Forssell, Chaitanya Goswami, Yuxin Gao, Yuhyun Lee, Vishal Jain, **Ariel K. Feldman**, Neil Mehta, Boyle Cheng, Pulkit Grover, "Method for Non-Invasive or Minimally-Invasive Stimulation of Deep Brain Targets", **[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).