EENA KOSIK

Cognitive Science PhD Student

Computational neuroscientist with 8+ years of experience analyzing diverse multi-modal data, spanning from physiological measurements to large-scale surveys.
Expertise in signal processing, time series analysis, advanced statistical methods, quantitative user experience research, human-computer interaction, and the art of collecting human data.

✉ **eena.kosik@gmail.com**   📞 **805-705-2857**   🌐 **elkosik.github.io**   in **ekosik**   ⚫ **elkosik**   🎓 **eena-kosik**

RESEARCH EXPERIENCE

GRADUATE RESEARCHER

UC San Diego | Voytek Lab   *September 2020 - Present*

- Leading 10+ data-driven research projects investigating the interactions between the autonomic nervous system and neurophysiological signals.
- Conceived of, developed, and am validating a Python tool for fine-scale quantification of the ECG waveform.
- Applying advanced statistical analysis and machine learning algorithms to use neural, cardiac, and respiratory waveform shape as a predictor for behavioral and disease states.
- Designed, coded, and am implementing EEG tasks via Psychopy to test the neural and cognitive implications of controlled breathing.

BEHAVIORAL SCIENTIST

Fidelity Investments   *June - August 2023*

- Designed, collected, analyzed, and presented a research study (N=5000+) to key stakeholders.
- Study outcomes resulted in incorporating human-centered design principles to the investor profile questionnaire (reaches 1MM customers).
- Developed expertise in qualitative and quantitative user-experience research methods.

CLINICAL RESEARCH COORDINATOR

UCSF | Memory & Aging Center   *June 2017 - August 2020*

- Collected and preprocessed MRI, physiological, and survey data from 200+ children, older adults, and neurodegenerative patients.
- Project lead for 3 first-author poster presentations.
- Co-authored 5 published research articles in reputable journals.
- Led a year-long clinical trial on the influence of awe on overall wellbeing and cardiovascular health.
- Fully trained and mentored 3 research coordinators.

EDUCATION

Ph.D. Cognitive Science   2020 - 2025 (*expected*)
University of California, San Diego
M.S. Cognitive Science   2020 - 2022
University of California, San Diego
B.A. Cognitive Science   2013 - 2017
University of California, Berkeley

SKILLS

Electrophysiology (EEG, iEEG, ECG) • Signal Processing • Time Series Analysis • Machine Learning • Advanced Statistical Analysis • Eye Tracking • MRI/fMRI • Data Visualization • Project Management • User Experience Research • Experimental Design • Paper Writing • Data Collection & Preprocessing

Python toolboxes: pandas, numpy, scipy, scikit-learn, tensorflow, pytorch, matplotlib, seaborn, mne

AWARDS & CERTIFICATIONS

Kavli Innovative Research Grant Recipient   *2023*
$40,000

National Science Foundation Graduate   *2022*
Research Fellowship - Honorable Mention

MicroMBA Certification   *2022*
Rady School of Management

UC Berkeley Summer Research Fellowship   *2017*
$4,000

MENTORSHIP & TEACHING

Graduate Teaching Assistant   *2020 - present*
Developed lesson plans, exams, assignments, and have lectured to 100's of undergraduates in several classes, including: **Brain Computer Interfaces, Neural Data Science, Intro to Python,** and **Intro to Statistical Analysis**.

Colors of the Brain Mentorship Lead   *2020 - present*
Elected in this leadership role to facilitate pairing faculty and graduate student mentors to underrepresented, minority undergraduate students interested in pursuing research in STEM.

PUBLICATIONS

2023 Recommendations for Structuring Undergraduate Research Programs Serving Historically Excluded and Marginalized Students in Neuroscience.
Christian Cazares*, Maribel Patiño*, Minerva Contreras, Julia C. Gorman, Jillybeth Burgado, Sana A. Ali, Quirine van Engen, **Eena L. Kosik**, Pamela Riviere, Emily T. Baltz, Chimuanya K. Agba, Michael Preston, Nagarajan Akshay, Jianna Cressy, Natalie Paredes, Chiaki Santiago, Kevin L. White. | under final review in **Nature Neuroscience**

2023 Magnetic seizure therapy and electroconvulsive therapy increase aperiodic activity.
Sydney E. Smith*, **Eena L. Kosik***, Quirine van Engen*, Aron T. Hill, Reza Zomorrodi, Daniel M. Blumberger, Zafiris J. Daskalakis, Itay Hadas, Bradley Voytek. | **medRxiv**; accepted in **Translational Psychiatry**

2023 Diminished baseline autonomic outflow in semantic dementia relates to left-lateralized insula atrophy.
Alice Y. Hua, Ashlin R. K. Roy, **Eena L. Kosik**, Nathaniel A. Morris, Tiffany E. Chow, Sladjana Lukic, Maxime Montembeault, Valentina Borghesani, Kyan Younes, Joel H. Kramer, William W. Seeley, David C. Perry, Zachary A. Miller, Howard J. Rosen, Bruce L. Miller, Katherine P. Rankin, Maria Luisa Gorno-Tempini, Virginia E. Sturm. | **Neuroimage: Clinical**

2023 Higher emotional granularity relates to greater inferior frontal cortex cortical thickness in healthy, older adults.
Sladjana Lukic, **Eena L. Kosik**, Ashlin R.K. Roy, Nathaniel Morris, Isabel J. Sible, Samir Datta, Tiffany Chow, Christina R. Veziris, Sarah R. Holley, Joel H. Kramer, Bruce L. Miller, Dacher Keltner, Maria Luisa Gorno-Tempini, Virginia E. Sturm. | **Cognitive, Affective & Behavioral Neuroscience**

2022 Dynamic autonomic nervous system states arise during emotions and manifest in basal physiology.
Lorenzo Pasquini, Fatemeh Noohi, Christina R. Veziris, **Eena L. Kosik**, Sarah R. Holley, Alex Lee, Jesse A. Brown, Ashlin R. K. Roy, Tiffany E. Chow, Isabel Allen, Howard J. Rosen, Joel H. Kramer, Bruce L. Miller, Manish Saggar, William W. Seeley, Virginia E. Sturm. | **Psychophysiology**

2020 Big Smile, Small Self: Awe Walks Promote Prosocial Positive Emotions in Older Adults.
Virginia E. Sturm, Samir Datta, Ashlin R. K Roy, Isabel J. Sible, **Eena L. Kosik**, Christina Veziris, Tiffany E. Chow, Nathaniel Morris, John Neuhaus, Joel H. Kramer, Bruce L. Miller, Sarah R. Holley, Dacher Keltner. | **Emotion**

2019 Thalamo-cortical network hyperconnectivity in preclinical progranulin mutation carriers.
Suzee E. Lee, Ana C. Sias, **Eena L. Kosik**, Taru M. Flagan, Jersey Deng, Stephanie A. Chu, Jesse A. Brown, Anna A. Vidovzsky, Maria Luisa Gorno Tempini, Anna M. Karydas, Giovanni Coppola, Dan H. Geschwind, Rosa Rademakers, Howard J. Rosen, Bruce L. Miller, William W. Seeley. | **NeuroImage: Clinical**

* These authors contributed equally

SELECTED CONFERENCE POSTERS & WORKSHOPS

2023 Novel parameterization of event-related potentials: a step towards characterizing the biophysical origins.
Eena L. Kosik*, Dillan Cellier*, Michael Preston*, Parsa Seyfourian, Leslie Claar, Lydia Marks, Irene Rembado, Bradley Voytek. | Society for Psychophysiological Research, New Orleans.

2023 Methods for Analyzing Neural Oscillations and Aperiodic Activity Workshop
Eena L. Kosik, Dillan Cellier, Michael Preston, Andrew Bender, Quirine van Engen, Sydney Smith, Bradley Voytek. | Society for Psychophysiological Research, New Orleans. [**code available here**]

2022 Asymmetries in the human inspiration/exhalation cycle relate to the nonsinusoidal waveforms of medial temporal lobe oscillations.
Eena L. Kosik, Bradley Voytek. | Society for Neuroscience, San Diego.

2022 Periodic and Aperiodic Mechanisms of Electroconvulsive Therapy for Major Depressive Disorder.
Quirine van Engen*, **Eena L. Kosik***, Sydney Smith*, Bradley Voytek. | Cognitive Neuroscience Society, San Francisco.

2019 Smaller Social Networks in Preclinical Azheimer's Disease Relate to Default Mode and Limbic Network Atrophy.
Eena L. Kosik, Samir Datta, Luke W. Bonham, Isabel J. Sible, Renaud La Joie, Nagehan Ayakta, Joel H. Kramer, Bruce L. Miller, William W. Seeley, Jennifer S. Yokoyama, Gil D. Rabinovici, Virginia E. Sturm. | Social and Affective Neuroscience, Miami.

2018 Orbicularis Oculi volume relates to resting parasympathetic activity and facial movement during positive emotion.
Eena L. Kosik, Nikolas R. Block, Samir Datta, Lorenzo Pasquini, Isabel J. Sible, Gerd F. Volk, John Neuhaus, Joel H. Kramer, Howard J. Rosen, Bruce L. Miller, William W. Seeley, Virginia E. Sturm. | Society for Affective Science, Los Angeles & Bay Area Affective Science, Stanford.

* These authors contributed equally