






EENA KOSIK-ROSE

Cognitive Science PhD Candidate

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Research Scientist in digital health and computational physiology with expertise in wearable time-series analysis, clinical research, and biobehavioral modeling. Experienced in designing and analyzing observational and interventional studies, translating multimodal physiological signals into clinically meaningful insights.

RESEARCH EXPERIENCE

UC SAN DIEGO | VOYTEK LAB

Graduate Researcher *September 2020 - Present*

- Leading 10+ data-driven research projects investigating the impact of autonomic and neurophysiological signals on emotion and cognition.
- Conceived of and developed a Python tool for fine-scale quantification of the ECG waveform (**patent pending**).
- Applying advanced statistical analysis and machine learning algorithms to use neural, cardiac, and respiratory waveform shape as a predictor for behavioral and disease states.

OURA

Algorithm Science Intern *June - August 2026*

- Incoming intern for the Algorithm Science team: developing and evaluating signal processing and machine learning methods for health sensing

APPLE

Affective Neuroscience Intern *January - August 2025*

- Built multimodal data pipelines combining gaze, motion, and physiology to model user affect.
- Applied computer vision and machine learning methods to immersive AR/VR closed loop experiences and wearable device data.

TAKEDA

Quantitative Sciences Intern *June - August 2024*

- Preprocessed and ran statistical models on wearable device data (heart rate and actigraphy) from a completed phase 2 clinical trial to investigate autonomic influence of an investigational drug.

UC SAN FRANCISCO

Clinical Research Coordinator *June 2017 - August 2020*

- Collected and preprocessed MRI, physiological, and survey data from 200+ participants.
- Co-authored 6 published research articles.
- Led a year-long clinical trial on the influence of awe on wellbeing and cardiovascular health.

EDUCATION

Ph.D. Cognitive Science 2020 - 2026 (*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 • AR (Augmented Reality) / VR (Virtual Reality) • Eye Tracking • Respiration • 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

Rita L. Atkinson Graduate Fellowship *2025*
\$43,350

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

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.

PATENTS

- 2025** Novel Electrocardiogram Waveform Parameterization for Cardiac Health.
Bradley Voytek, [Eena Kosik](#), Morgan Fitzgerald, Kenton Guarian, Ryan Hammonds, Ulrika Birgersdotter-Green, Gregory Feld. | [PCT/US2025/042168](#). *Patent Pending.*

PUBLICATIONS

- 2026** Volitionally controlled respiratory waveform shape is coupled with neural waveform shape.
[Eena L. Kosik-Rose](#), Ariane E. Rhone, Sukhbinder Kumar, Md Rakibul Mowla, Brian Dlouhy, Christina Zelano, Bradley Voytek. | *In Preparation.*
- 2026** PyHEARTS: Beat-by-beat ECG waveform morphology mapping for interpretable machine learning and AI.
Morgan Fitzgerald, [Eena Kosik](#), Jamie Burks, Ryan P. Hammonds, Kenton Guarian, Mattheus Ramsis, Gregory K. Feld, Ulrika Birgersdotter-Green, Vineet Augustine, Bradley Voytek. | *Under Review.*
- 2026** Methods for Wearable-Derived Pulse Rate Measures and Their Application to Modeling the Relationship Between Pulse Rate and Motor Activity in Narcolepsy Type 1.
[Eena L. Kosik-Rose](#), Raul Torres, Brian Tracey, Tina Olsson, Dmitri Volfson, Francesco Onorati*, Marta Karas*. | [Digital Biomarkers](#)
- 2026** Cycle-by-cycle respiration waveforms are coupled with the shape of neural oscillations.
[Eena L. Kosik-Rose](#), Guangyu Zhou, Andrew Sheriff, Joshua M. Rosenow, Stephan U. Schuele, Chima O. Oluigbo, Saige Anabel Teti, Mohamad Koubeissi, Md Rakibul Mowla, Ariane E. Rhone, Sukhbinder Kumar, Brian Dlouhy, Christina Zelano, Bradley Voytek. | [bioRxiv](#)
- 2025** Sleep Parameters of Breathing and Cognitive Function in a Diverse Hispanic/Latino Cohort.
Kevin A. González, Wassim Tarraf, Shanmin Sultana, Barbara Junco, [Eena L. Kosik](#), Bradley Voytek, Hector González, Alberto R. Ramos. | [CHEST Pulmonary](#)
- 2024** Structural neuroanatomy of human facial behaviors.
Fate Noohi, [Eena L. Kosik](#), Christina Veziris, David C Perry, Howard J Rosen, Joel H Kramer, Bruce L Miller, Sarah R Holley, William W Seeley, Virginia E Sturm. | [Social Cognitive and Affective Neuroscience](#)
- 2024** Neuroscience: Unveiling hidden sources of noise.
Morgan Fitzgerald, [Eena L. Kosik](#), Bradley Voytek. | [eLife](#)
- 2024** A trainee-informed model for undergraduate neuroscience research programs serving marginalized students.
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. | [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 Zomorodi, Daniel M. Blumberger, Zafiris J. Daskalakis, Itay Hadas, Bradley Voytek. | [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 Saggarr, 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.
Suze 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