

TAHRA L. EISSA

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University of Colorado Anschutz School of Medicine

CURRENT POSITION

Assistant Professor

July 2025

University of Colorado Anschutz;

Department of Physiology and Biophysics, Department of Psychiatry, Department of Biomedical Informatics;

Aurora CO

EDUCATION

University of Chicago Chicago, IL

2012-2017

PhD in Neurobiology

Cornell University Ithaca, NY

2008-2012

BS in Bioengineering, Concentration: Biomedical Engineering

PAST RESEARCH EXPERIENCE

NIH BRAIN Initiative K99/R00 Fellow

2023-2025

University of Colorado Boulder; Department of Applied Math; Boulder CO

Postdoctoral Research Associate

2018- 2023

University of Colorado Boulder; Boulder, CO

Postdoctoral Research Scientist

2017-2018

Columbia University; New York, NY

Doctoral Candidate

2012-2017

University of Chicago; Chicago, IL

Research Assistant

2012

University of Chicago; Chicago, IL

Research Assistant

2010-2012

Cornell University; Ithaca, NY

Research Assistant

2010-2012

Northwestern University: Feinberg School of Medicine; Chicago, IL

AWARDS, GRANTS, AND FELLOWSHIPS

1. **Department of Physiology MPI Award-** University of Colorado Anschutz 2026
2. **Pedersen Foundation Award-** co-I (primary Neill Epperson) Pedersen Foundation 2025
3. **NIH BRAIN Initiative R00** NINDS NIH 2025
4. **SEE-Diversity Fellowship** APA, IRBO 2025
5. **NIH BRAIN Initiative K99 Fellow** NINDS NIH 2023-2025
6. **Allen Institute Next Generation Leader- Chair** Allen Institute 2022-2025
7. **Emerging Leaders in Neuroscience Fellow** Weill Cornell Medicine 2023
8. **Cornell FIRST Future Faculty Fellow** Cornell University 2022
9. **NEURO-YES Fellow** University of Rochester 2022
10. **Neurobiology of Cognition GRC Travel Award** Gordon Research Conference 2022
11. **Grass Foundation Achievement Award** The Grass Foundation 2022
12. **Leading Edge Fellow** Janelia Research 2022
13. **Neuroscience Futures Fellow** Oregon Health Science University 2022
14. **Mount Sinai Neuroscience Fellow** Icahn School of Medicine 2022
15. **“Be Boundless” Fellow** University of Washington 2021
16. **BRAINS Fellow** University of Washington 2019

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| 17. Hojjat Adeli Award International Journal of Neural Systems | 2019 |
| 18. Best Dissertation in Neurobiology 2017-18 University of Chicago, Chicago IL | 2018 |

PUBLICATIONS

Preprints

1. Dadlani R, McAlister JL, **Eissa TL**, Fefferman NH. Classification of dynamics for a two person model of planned behavior. *arxiv* (2026) doi: arXiv:2601.11804
2. Jarne C, Yoon R, **Eissa TL**, Kilpatrick ZP, Josić K. Task-Parametrized Dynamics: Representation of Time and Decisions in Recurrent Neural Networks *bioRxiv* (2025) doi: 2409.17573 [under review]
3. Schawrze AC, Kawakatsu M, Iams S, Fefferman NH, **Eissa TL**. Planned behavior, perceptual biases, and the dynamics of collective action. *arxiv* (2024) doi: 2409.17573 [under review]

Journal Articles

1. **Eissa TL**, Kilpatrick ZP. Learning efficient representations of environmental priors in working memory. *PLOS Comput. Biol.* (2023). <https://doi.org/10.1371/journal.pcbi.1011622>
2. Cihak H, **Eissa TL**, Kilpatrick ZP. Distinct excitatory and inhibitory bump wandering in a stochastic neural field. *SIAM J Appl Dyn Syst* (2022). doi: 10.1137/22M1482329
3. **Eissa TL**, Gold JJ[†], Josić K[‡], Kilpatrick ZP[‡]. Suboptimal human inference can invert the bias-variance trade-off for decisions with asymmetric evidence. *PLOS Comp. Biol.* (2022). doi:10.1371/journal.pcbi.1010323
4. Gill BJA, Wu X, Khan FA, Sosunov AA, Liou JY, Dovas A, **Eissa TL**, Banu MA, Bateman LM, McKhann GM II, Canoll PD, Schevon CA. Ex vivo Multi-Electrode Analysis Reveals Spatiotemporal Dynamics of Ictal Behavior at the Infiltrated Margin of Glioma. *Neurobio. Dis.* (2020). doi: 10.1016/j.nbd.2019.104676
5. Tryba AK[†], Merricks EM[†], Lee S, Pham T, Cho SJ, Nordli DR, **Eissa TL**, Schevon CA[‡], van Drongelen W[‡]. The role of paroxysmal depolarization in focal seizure activity. *J. Neurophys.* (2019). doi:10.1152/jn.00392.2019
6. **Eissa TL**, Schevon CA, Emerson RG, Goodman RR, McKhann GM, Van Drongelen W. The Conversion of Ictal Multi-Unit Activity into EEG Seizure Activity. *IJNS* (2018). doi: 10.1142/S0129065718500272
7. **Eissa TL**[†], Dijkstra K[†], Brune C, Emerson RG, Goodman RR, McKhann GM, Schevon CA, van Drongelen W[‡], van Gils S[‡]. The Cross-Scale of Feedforward Inhibition during Human Neocortical Seizure Activity. *PNAS* (2017). doi: 10.1073/pnas.1702490114
8. **Eissa TL**, Tryba AK, Marcucilli CM, Ben-Mabrouk F, Smith E, Lew S, Emerson RG, Goodman RR, McKhann GM Jr, Frim DM, Pesce LL, Kohrman MH, Emerson RG, Schevon CA, van Drongelen W. Multiscale Aspects of Generation of High Gamma Activity during Seizures in Human Neocortex. *eNeuro* (2016). doi: 10.1523/ENEURO.0141-15.2016
9. Meijer HE[†], **Eissa TL**[†], Kiewiet B, Neuman JF, Schevon CA, Emerson RG, Goodman RR, McKhann GM Jr, Marcuccilli CJ, Tryba AK, Cowan JD, van Gils SA[‡], van Drongelen W[‡]. Modeling Focal Epileptic Activity in the Wilson-Cowan model with Depolarization Block. *J. Math. Neurosci.* (2015) doi: 10.1186/s13408-015-0019-4
10. Piochon C, Kloth AD, Grasselli G, Titley H, Nakayama H, Hashimoto N, Wan V, Simmons D, **Eissa T**, Miyazaki T, Watanabe M, Takumi T, Kano M, Wang SH, Hansel C. Deficits in Cerebellar Plasticity and Motor Learning in a Copy Number Variation Mouse Model of Autism Spectrum Disorder. *Nature Comm.* (2014). doi: 10.1038/ncomms6586

Book Chapters

1. Canavan SV, **Eissa TL**, Schevon CA, McKhann GM Jr, Goodman RR, Emerson RG, van Drongelen W. *Epileptogenic networks: applying network analysis techniques to human seizure activity*. In: Validating Neuro-Computational Models of Neurological and Psychiatric Disorders (Basabdatta B, Fahmida C, ed): Springer. (2015) doi: 10.1007/978-3-319-20037-8-11

2. ElBasiouny SM, Quinlan KA, **Eissa TL**, Heckman CJ . *Electrophysiological abnormalities in SOD1 transgenic models in Amyotrophic Lateral Sclerosis: the commons and differences*. In: Amyotrophic Lateral Sclerosis (Maurer MH, ed): InTech (2011) doi: 10.5772/30711

Commentaries and Reviews

1. **Eissa TL**. Mathematical Models of Decision-Making. *Oxford Research Encyclopedia of Neuroscience*. (2025). doi: 10.1093/acrefore/9780190264086.013.424
2. Kilpatrick ZP, Holmes WR, **Eissa TL**, Josić K. Optimal Models of Decision Making in Dynamic Environments. *Curr. Op. Neurobiol.* (2019). doi: 10.1016/j.conb.2019.06.006
3. Schevon CA, Tobochnik S, **Eissa TL**, Merricks EM, Gill BJA, Parrish RR, Bateman LM, McKhann Jr GM, Emerson RG, Trevelyan AJ. Multiscale Recordings Reveal the Dynamic Spatial Structure of Human Seizures. *Neurobiol. Dis.* (2019). doi: 10.1016/j.nbd.2019.03.015
4. **Eissa TL** and Schevon CA. The Role of Computational Modeling in Seizure Localization. *Brain* (2017). doi: 10.1093/brain/aww332

Peer Reviewed Conference Proceedings

1. Epifanio J, Malik LJ, Andrzejak RG, **Eissa TL**. Neural computation for prediction in noisy, unknown environments. *CCN*; New York, NY *August 2026*
2. **Eissa TL**, Kilpatrick ZP. Uncertainty in stimulus dynamics drives asymmetries in evidence integration. *ICMNS*; Barcelona, Spain *June 2025*
3. **Eissa TL**, Kilpatrick ZP. Learning representations of environmental priors in visual working memory. *Cosyne*; Montreal, CA *March 2023*
4. **Eissa TL**, Kilpatrick ZP. Learning efficient attractor-based working memory representations in heterogeneous environments. *CCN*; San Francisco, CA *August 2022*
5. **Eissa TL**, Gold JI[‡], Josić K[‡], Kilpatrick ZP[‡]. Normative decision asymmetries with symmetric priors but asymmetric evidence. *Cosyne*; virtual *February 2021*
6. **Eissa TL**[†], Barendsgdt NW[†], Gold J, Josić K[‡], Kilpatrick ZP[‡]. Hierarchical inference interactions in dynamic environments. *Cosyne*; Lisbon, Portugal *February 2019*
7. Elbasiouny SM, **Eissa TL**, Comparison of anatomically-detailed and reduced compartmental models in simulating spinal motoneuron firing behaviors. *CIBEC*; Cairo, Egypt *December 2010*

SELECT PRESENTATIONS

1. **Human Neuromodulation Seminar** University of Utah *June 2026*
2. **Neuroscience and Machine Learning Workshop- "Of Wits and Weights"**, University of Chicago, Chicago, IL; **Panelist** *February 2026*
3. **Middle Eastern Systems Neuroscience Symposium** *November 2025*
4. **Department of Biology Seminar** University of Denver; Denver, CO *February 2025*
5. **AWM Workshop**, SIAM Annual Conference; Spokane, WA *July 2024*
6. **Mathematical Biology Seminar**, Creighton University; Omaha, NE *April 2023*
7. **Carney Institute for Brain Science**, Brown University; Providence, RI *April 2023*
8. **Biofrontiers Institute**, University of Colorado Boulder; Boulder, CO *February 2023*
9. **Mount Sinai Center for Computational Psychiatry**, New York, NY *February 2023*
10. **Emerging Leaders Seminar**, Weill Cornell Medical School; New York, NY *February 2023*
11. **NeuroYES Seminar**, University of Rochester; Rochester, NY *October 2022*
12. **Cornell University Department of Biomedical Engineering**, Ithaca, NY *October 2022*
13. **NeuroBridges Summer School**, Cluny, France *September 2022*
14. **GRC: Neurobiology of Cognition**, Gordon Research Conference, Sunday River, Maine *July 2022*
15. **Neuroscience Futures Seminar**, OHSU Department of Neurology, Portland, OR, virtual *June 2022*
16. **Neuroscience Seminar**, Icahn School of Medicine at Mount Sinai, New York, NY *May 2022*
17. **College of Engineering Seminar**, Illinois Institute of Technology, Chicago, IL *April 2022*
18. **Biofrontiers Institute**, University of Colorado Boulder, Boulder, CO; **Panelist** *April 2022*

19. BRAIN Alliance Seminar , California State University, CA	<i>January 2022</i>
20. WWTNS , CNRS, France, virtual	<i>December 2021</i>
21. Grossman Institute , University of Chicago; Chicago, IL, virtual	<i>May 2021</i>
22. “Be Boundless” Seminar , University of Washington; Seattle, WA, virtual	<i>March 2021</i>
23. “Expanding Horizons” Workshop , Cosyne, virtual	<i>February 2021</i>
24. TCN Conference , Gulf Coast Consortia; Houston, TX Plenary Speaker	<i>January 2020</i>

TEACHING

Instructor

University of Colorado Boulder : Calculus 1 for Engineers (Undergrad)	<i>2019-2021</i>
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Guest Lecturer

University of Colorado Anschutz : Intro to Neuroscience (Grad)	<i>2025-</i>
University of Colorado Boulder : Computational Neuroscience (Grad)	<i>2020</i>
University of Chicago : Signal Processing for Neuroscientists (Grad)	<i>2015-</i>
University of Chicago : Computational Methods for Cognitive Neuroscience (Grad)	<i>2015-</i>

Teaching Assistant

University of Chicago : Introduction to Neuroscience (Undergrad) ; Neurobiology of Disease (Grad)	
Cornell University : Cellular-Molecular Bioengineering (Undergrad); Properties of Biomaterials (Undergrad)	
NeuroBridges Summer School : Decision-Making (Grad)	

OTHER TRAINING AND AFFILIATIONS

Training

Research Mentoring Essentials , University of Colorado Anschutz; Aurora, CO	<i>2026</i>
SEEDS Program , APA, IBRO; Chicago, IL	<i>2025</i>
Compass Program , Washington University School of Medicine in St. Louis; virtual	<i>2024</i>
Pathobiology and Translational Neuroscience Program , University of Chicago; Chicago, IL	<i>2012-2017</i>
Clinical and Translational Research for PhDs , NIH; Bethesda, MD	<i>2015</i>

Affiliations

National Institute of Theory and Mathematical Biology	
Society for Neuroscience	

SELECT SCIENTIFIC SERVICE

Committees

CU Anschutz NSP Retreat Committee- co-chair	<i>2026</i>
CU Anschutz Neurosurgery Faculty Hiring Committee	<i>2025</i>
CU Anschutz HOPE-R Committee	<i>2025-</i>

Reviewer

CCN, PLoS Computational Biology, Science Advances, Quarterly Journal of Experimental Psychology, Bulletin of Mathematical Biology, Cosyne, BMC Neurology, Nature Reviews Neuroscience	
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Mentoring Activities

UChicago “How to find the right postdoc” panel : Panelist	<i>2026</i>
CU Boulder APPM Mentoring Program : Founder	<i>2022-2024</i>
NeuroMatch Academy : Mentor	<i>2021- Present</i>
AWM : Mentor	<i>2018-2025</i>

Outreach

Denver Botanic Gardens : Scientific Engagement Volunteer	<i>2022-2024</i>
CU Boulder Applied Math Postdoc Liaison	<i>2023-2024</i>
Douglas County School District : Behavioral Specialist Guest Speaker	<i>2023</i>
Center for Teaching and Learning Seminar Series Presenter	<i>2021</i>
Career Development Seminar Series Coordinator and Presenter	<i>2021</i>