

ELIZABETH M. SIEFERT

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<https://emsiefert.github.io/>

EDUCATION

July 2021 - Current Expected: 05/2027	University of Pennsylvania – Ph.D. Candidate in Neuroscience Interdisciplinary Training Program in Computational Neuroscience Advisors: Dr. Anna Schapiro & Dr. Brett Foster
2015-2019	Brown University – Sc.B. in Cognitive Neuroscience. Advisors: Dr. William Heindel & Dr. Elena Festa Thesis: <i>Cue-Trace Interactions During Episodic Memory Retrieval: Synergistic Ecphory and the Pupillary Old/New Effect</i>
Fall 2017	American College of Thessaloniki (Greece)

AWARDS AND HONORS

2025	Jameson-Hurvich Travel Award
2022	Society for Neuroscience Trainee Professional Development Award
2022	National Science Foundation Graduate Research Fellowship (NSF-GRFP)
2021	Neuroscience Training Grant (T32)
2019	Cognitive, Linguistic, and Psychological Studies Premium for Excellence in Cognitive Neuroscience
2019	CLPS Departmental Honors, Magna Cum Laude, Sigma Xi
2018	Karen T. Romer Undergraduate Teaching and Research Award (UTRA)
2017	Best Undergraduate Poster at Brown University's Mind Brain Research Day
2017	Linking Internships and Knowledge Award (LINK)
2016,17,18	FAITH Scholarship for Excellence in STEM award
2015	FAITH Scholarship for Academic Excellence

PUBLICATIONS, TALKS, POSTERS

Preprints

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. (*under review*). Arousal state modulates human hippocampal ripples.
<https://www.biorxiv.org/content/10.64898/2026.06.26.734578v1>

Solomon, S.H., Krishnamurthy, S., **Siefert, E.M.**, Gonciulea, C.M., Schapiro, A.C. (*under review*). Memory reactivation during sleep promotes structure abstraction.
<https://www.biorxiv.org/content/10.64898/2026.04.10.717748v1.abstract>

Siefert, E.M., Aguirre, G.K. (*under review*). Brain parcellation and the attribution of normal variation to neurological injury in capital trials.

<https://doi.org/10.2139/ssrn.7174798>

Sherman, B.E., Gonciulea, C.M., **Siefert, E.M.**, Schapiro, A.C. (*under review*). Prior knowledge scaffolds acquisition of new memories but only sleep supports integration.

https://osf.io/preprints/psyarxiv/bj29n_v1

Publications

Siefert, E.M., Uppuluri, S., Mu, J., Tandoc, M.C., Antony, J.W., Schapiro, A.C. (2024). Memory reactivation during sleep does not act holistically on object memory. *Journal of Neuroscience*, e0022242024. <https://doi.org/10.1523/JNEUROSCI.0022-24.2024>

- Featured in JNeuro's "This Week in the Journal". <https://doi.org/10.1523/JNEUROSCI.twij.44.24.2024>
- Featured in UPenn GLIA's "Brains & Briefs". <https://www.upennglia.com/briefs/bib-memory-reactivation>

Siefert, E. M., He, M., Festa, E. K., & Heindel, W. C. (2023). Pupil size tracks cue-trace interactions during episodic memory retrieval. *Psychophysiology*, e14409.

<https://doi.org/10.1111/psyp.14409>

He, M., Heindel, W.C., Nassar, M.R., **Siefert, E.M.**, & Festa, E.K. (2020). Age-related changes in the functional integrity of the phasic alerting system: A pupillometric investigation, *Neurobiology of Aging*, 91, 136-147,

<https://doi.org/10.1016/j.neurobiolaging.2020.02.025>

Talks / Symposia

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *Graduate Certificate in Computational Neuroscience Mini-symposium, Philadelphia, May 2026*

Siefert, E.M., Aguirre, G.K., Brain parcellation and the attribution of normal variation to neurological injury in capital trials. *Computational Neuroscience Initiative +/- seminar talk, Philadelphia, April 2026*

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *Cognitive Neuroscience Society Annual Meeting, Data Blitz, Vancouver, March 2026*

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *International Sleep Replay Workshop, Open Talks, Vancouver, March 2026*

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L., Arousal state modulation of human hippocampal ripples across wake and sleep. *Society for Neuroscience Meeting, Neural Dynamics Underlying Memory Nanosymposium, San Diego, November 2025*

- **Co-chair of nanosymposium** (Neural Dynamics Underlying Memory)

Siefert, E.M., Aguirre G.K., Manufactured Mitigation: Brain Parcellation Used to Attribute Normal variation to Neurological Injury in Capital Trials. *Neurolaw Works in Progress Workshop, virtual, September 2025*

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L., Arousal state modulation of human hippocampal ripples across wake and sleep. *Interdisciplinary Training Program in Computational Neuroscience Mini-Symposium, Philadelphia, June 2025*

Siefert, E.M., Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L., Arousal state modulation of human hippocampal ripples. *NTG/CANAC/Vision Retreat, Philadelphia, May 2025*

Siefert, E.M., Aguirre, G.K., The use of neuroimaging evidence in capital crimes proceedings. *Mind, Brain & Society – Works in Progress, UPenn Center for Neuroscience and Society, Philadelphia, October 2024*

Siefert, E.M., Aguirre, G.K., Manufactured mitigation: misuse of neuroimaging evidence in capital crimes proceedings. *UPenn Center for Neuroscience and Society Graduate Fellows seminar, Philadelphia, May 2024*

Siefert, E.M., Mu, J., Tandoc, M.C., Uppuluri, S., Antony, J.W., Schapiro, A.C., Memory reactivation during sleep does not act holistically on object memory. *Society for Neuroscience Meeting, Learning and Memory Nanosymposium, Washington, D.C., November 2023*

Siefert, E.M., Mu, J., Tandoc, M.C., Uppuluri, S., Antony, J.W., Schapiro, A.C., Memory reactivation during sleep does not act holistically on object memory. *Computational Neuroscience Initiative +/- seminar talk, Philadelphia, October 2023*

Siefert, E.M., Modulating memory consolidation in humans: Targeted Memory Reactivation. *Computational Neuroscience Initiative +/- journal club, Philadelphia, October 2023*

Siefert, E.M., Mu, J., Tandoc, M.C., Uppuluri, S., Antony, J.W., Schapiro, A.C., Reactivation order during sleep differentially impacts structured and idiosyncratic knowledge. *Princeton Computational Memory Lab Meeting, Princeton, March 2023*

Posters (* = presenting author)

Siefert, E.M.*, Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *Context and Episodic Memory Symposium, 2026*

Siefert, E.M.*, Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *Cognitive Neuroscience Society Annual Meeting, 2026*

Siefert, E.M.*, Chen, Y.Y., Davis, K.A., Chen, H.I., Schapiro, A.C., Foster, B.L. Arousal state modulation of human hippocampal ripples across wake and sleep. *International Sleep Replay Workshop, 2026*

Larson, O.* , Sato, L., Krishnamurthy, S., Lee, R., Wang, Q., **Siefert, E.**, Gehrman, P., Schapiro, A. No added benefit of targeted memory reactivation during naps on negative memory rescripting. *SLEEP meeting of the Associated Professional Sleep Societies, 2025*

Larson, O.* , Sato, L., Krishnamurthy, S., Lee, R., Wang, Q., **Siefert, E.**, Gehrman, P., Schapiro, A. No added benefit of targeted memory reactivation during naps on negative memory rescripting. *Mahoney Institute for Neurosciences 40th Annual Symposium, 2025*

Larson O.* , Sato L. Krishnamurthy S., Lee R., Wang Q., **Siefert E.**, Gehrman P., Schapiro A. Effects of nap targeted memory reactivation (TMR) on arousal and distress to real-life memories. *International Sleep Replay Workshop (virtual), 2024*

Sherman B.E.* , **Siefert E.M.**, Gonciulea C., and Schapiro, A.C. Interleaving the reactivation of new and old memories during sleep to promote memory integration. *International Sleep Replay Workshop (virtual), 2024*

Sherman B.E.* , **Siefert E.M.**, Gonciulea C., Schapiro, A.C., Integrating new and old memories during sleep: testing the effects of interleaved memory reactivation. *Society for Neuroscience Meeting, 2023*

Sherman B.E.* , **Siefert E.M.**, Schapiro, A.C., Measuring the rapid acquisition and integration of structured knowledge. *Cognitive Science Society Meeting, 2023*

Siefert, E.M.*, Mu, J., Tandoc, M.C., Uppuluri, S., Antony, J.W., Schapiro, A.C., Reactivation order during sleep differentially impacts structured and idiosyncratic knowledge. *International Conference on Learning and Memory, 2023*

Siefert, E.M.*, Mu, J., Tandoc, M.C., Uppuluri, S., Antony, J.W., Schapiro, A.C., Effects of the order of reactivation during sleep on memory and generalization. *Society for Neuroscience Meeting, 2022*

- Awarded SfN Trainee Professional Development Award

Siefert, E.M.*, Mu, J., Uppuluri, S., Antony, J.W., Schapiro, A.C., Effects of Interleaved versus blocked memory reactivation during sleep. *Context and Episodic Memory Symposium, 2022*

Siefert, E.M.*, He, M., Festa, E.K., Heindel, W.C., Cue-Trace Interactions During Episodic Memory Retrieval: Synergistic Ecphory and the Pupillary Old/New Effect. *Context and Episodic Memory Symposium, 2020*

He, M., **Siefert, E.***, Nassar, M., Heindel, W., Festa, E., Pupillary Response as an Index of Cognitive Reserve Mediated by Locus Coeruleus Function. *Brown University Mind Brain Research Day, 2017*

- Awarded “Best Undergraduate Poster”

TEACHING AND MENTORSHIP

Expected 2027 **UPenn Center for Excellence in Teaching, Learning, and Innovation Teaching Certificate**

Guest lectures

July 2026	<i>Neuroscience of Memory</i> , Art + Science: Creative Inquiry, Flying University for Ukrainian Students
Nov. 2025	<i>Manufactured Mitigation</i> , Law and the Mind, University of Georgia School of Law
Fall 2025	<i>Memory</i> , Cognitive Neuroscience, UPenn
Fall 2023	<i>Memory</i> , Cognitive Neuroscience, UPenn
Fall 2023	<i>Memory and Sleep</i> , Foundations of Social, Cognitive, and Affective Neuroscience, UPenn

Teaching

Fall 2025	TA, undergraduate course: <i>Cognitive Neuroscience</i> (UPenn)
Sum. 2022-25	Teacher, Upward Bound Summer Neuroscience Course (UPenn) 2022, 23, 24: <i>Learning and Memory</i> ; 2025: <i>Neuroethics</i>
Sum. 2023, 24	Neuroethics Discussion Leader, Summer Neuroscience Research Academy (UPenn)
Spring 2024	Graduate Mentor & TA, graduate course: <i>Contemporary Research Issues in Neuroscience and Society</i> (UPenn)
Fall 2023	TA, undergraduate course: <i>Cognitive Neuroscience</i> (UPenn)
Fall 2023	Graduate Mentor & TA, graduate course: <i>Foundations of Social, Cognitive, and Affective Neuroscience</i> (UPenn)
March 2022	Leader, Sleep EEG Workshop (UPenn)
Spr. 2019	TA, undergraduate course: <i>Brain Damage and the Mind</i> (Brown)

Mentorship

2025 – Curr.	Mentor, Yorktown High School Science Research Program (Yorktown High School, NY)
2021, 2024	Mentor, Diversity and Equity Initiative in the Mind Sciences (UPenn)
Spring 2024	Independent study mentor, philosophy master's student, project title: <i>Moral issues of sleep disruption in the military</i> (UPenn)
2022-2023.	Mentor, Neuroscience Graduate Group Sibs Program (UPenn)
2022-2023	Mentor, Action Against Bias Application Support Program (UPenn)
2020-2022	Mentor, MindCORE Step-Ahead Mentorship Program (UPenn)
2016-2019	Peer Advisor, Meiklejohn Peer Advising Program (Brown)

Undergraduate Student Mentees

Sindhuja Uppuluri (UPenn '24)
Anyara Rodriguez (UPenn '22)
Jianing Mu (Haverford '22)
Jefrey Alexander (Lafayette College '23)
Anna Kaneb (Brown '21)
Chris Schutte (Brown '21)

High School Student Mentees

Bernadette Shafik (Yorktown High School, NY, '27)

- First place at Somers Science Fair in Behavioral and Social Sciences (2025)
- Participant in Westchester Science and Engineering Fair (WESEF; 2026)
- Second place at Tri-County Science and Technology Fair in Psychological/Experimental Psychology (2026)

LEADERSHIP AND SERVICE

2026-Current	Incoming Chair, Society for Neuroscience Early Career Advisory Committee (formerly Trainee Advisory Committee)
2023-2026	Member, Society for Neuroscience Trainee Advisory Committee
2024-2026	Outcomes and Data Committee Chair, Diversity and Equity Initiative in the Mind Sciences (PHL, PA)
2023-2025	Community Building Chair, GLIA, UPenn Neuroscience Graduate Group (PHL, PA)
2023-2024	Senior Fellow, UPenn Center for Neuroscience and Society (PHL, PA)
Jan. 2024	Co-leader of Art + The Brain Workshop, January Girls Program (East Hampton, NY)
2023	Outcomes and Data Committee member, Diversity and Equity Initiative in the Mind Sciences (PHL, PA)
2022-2023	Co-Leader, Let's Do Lunch Seminar Series, UPenn Neuroscience Graduate Group (PHL, PA)

2021-2023	Co-Chair, UPenn Neurolaw Society (PHL, PA)
Jan. 2019	Co-leader of Art + The Brain Workshop, January Girls Program (East Hampton, NY)
2017- 2019	Case Worker, Housing Opportunities for People Everywhere (Providence, RI)
2017-2019	Middle-School Lacrosse Coach, The Wheeler School (Providence, RI)
2015-2019	Staff Supervisor, Brown University Dining Services (Providence, RI)
2015-2017	Founding Member, Safe House, Brown University (Providence, RI)

Ad hoc reviewing

Progress in Neurobiology, eLife, Current Biology, Journal of Neuroscience, Cerebral Cortex, PNAS, Nature Neuroscience

RESEARCH TRAINING

Research Specialist (July 2019 – July 2021)

Advisor: Dr. Anna Schapiro

Penn Computational Cognitive Neuroscience Lab, University of Pennsylvania

Undergraduate Research Assistant (October 2016 – May 2019)

Advisors: Dr. William Heindel and Dr. Elena Festa

Aging and Cognition Lab, Brown University

Research Intern (Summer 2017)

Advisors: Dr. Alison Goate and Dr. Anna Pimenova

Goate Laboratory, Loeb Center for Alzheimer's Disease, Mount Sinai Icahn School of Medicine

Research Assistant (Summer 2014, 2015)

Advisor: Dr. John Pollock

Neurobiology and Neuroscience of Pain Lab, Duquesne University

REFERENCES

Dr. Brett Foster

Associate Professor, Neurosurgery, University of Pennsylvania

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Dr. Anna Schapiro

Associate Professor, Psychology, University of Pennsylvania

aschapi@sas.upenn.edu

Dr. Elena Festa

Senior Lecturer, Cognitive Linguistic and Psychological Sciences, Brown University

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Dr. William Heindel

Professor, Cognitive Linguistic and Psychological Sciences, Brown University

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