

Christopher Micek

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EDUCATION

PhD in Computer Science Worcester Polytechnic Institute (WPI), Worcester, MA Advisor: Prof. Erin Solovey	Aug 2022 – May 2025
Master of Science in Computer Science Worcester Polytechnic Institute (WPI), Worcester, MA Advisor: Prof. Erin Solovey	Aug 2019 – Aug 2022
Bachelor of Science in Biomedical Engineering <i>Major Focus Area: Computational Biology</i> <i>Minor: Computer Science</i> Johns Hopkins University, Baltimore, MD	Aug 2013 – May 2017

SKILLS

Programming: Python, MATLAB, R, C, Java, JavaScript, Kotlin

Software and Tools: JetBrains IDEs, Microsoft Office, Git, Lab Streaming Layer (LSL), OBS, MongoDB, Docker, Django, NodeJS, PsychoPy, Android Studio, WhisperX, ChatGPT, Gemini, Miro, Trello, Balsamiq, Adobe XD, Fluid UI, pgAdmin, Bioimage Suite, Persyst, Qt, Solidworks

Other: Extensive experience conducting human subjects research, writing scientific papers, and communicating scientific research to audiences with varying levels of expertise; expertise employing user-centered techniques for needs assessment and design (semi-structured interviews, focus groups, card sorting, storyboard scenarios, etc.); Brainstorming; Jazz Improvisation; Japanese (through 2nd year at university, conversational)

RESEARCH EXPERIENCE

Worcester Polytechnic Institute, Worcester, MA

PhD Candidate/Research Assistant/FORW-RD NSF NRT Trainee, HCI Lab

August 2019 – May 2025

Advisor: Prof. Erin T. Solovey, PhD

Selected Projects

- *Team Brain-Computer Interfaces: Charting Opportunities, Concerns, and Guidelines for Future Collaborative Work* (Mar. 2023 – May 2025) — Employed user-centered techniques (generative card sorting, semi-structured interviews, exploration of speculative futures with storyboards) to assess stakeholder needs and challenges during collaborative work, as well as compensatory strategies or tools used (such as generative AI, organization software, etc.) to probe gaps in current offerings. Explored potential implementations of brain-computer interfaces (BCIs) for meeting these needs, and associated perceptions and concerns. Using the results from these exercises, proposed a set of ethical guidelines for designing BCIs for collaboration that center user agency, transparency, and well-being.
- *Capturing Team Cognition: A Multimodal Dataset for Adaptive Collaborative Interfaces* (Mar. 2023 – May 2025) — In collaboration with the University of Bremen, conducted a study exploring the relationships between markers of individual and interpersonal mental states during a creative collaboration task, in order to provide tailored feedback for teams. The study simulated multi-human-agent collaboration in a

team of the future, recording participants' speech, video, and brain activity via EEG while they worked together remotely across two continents to design a virtual escape room, with help available from ChatGPT. Results demonstrate the technical feasibility of adaptive BCIs supporting teams, showing key aspects of collaboration can be operationalized based on user brain activity. To support future research in this area, we made our dataset openly available.

- *Examining the Impact of Digital Jury Moderation on the Polarization of US Political Communities on Social Media* (Jun. 2020 – May 2022) — MS thesis project assessed the effects of a peer-based content moderation system on the polarization of social media end users. Conducted a multi-phase study to compare the downstream impacts of exposure to political content on feeds moderated by users in juries vs. centralized moderation. Developed a testbed to simulate synchronous jury moderation with participant focus groups (Django), and feed results of jury/centralized moderation to simulated social media feeds (NodeJS).
- *Understanding HCI Practices and Challenges of Experiment Reporting with Brain Signals: Towards Reproducibility and Reuse* (Aug. 2019 – Mar. 2022) — Contributed to a literature review analyzing how HCI researchers documented their use of brain signals in their work and provided an experiment model for HCI researchers working with brain data to use as a common framework when sharing their research methodologies.

Yale School of Medicine, New Haven, CT

Postgraduate Research Associate, Blumenfeld Neurology Lab

June 2017 – August 2019

Advisor: Dr. Hal Blumenfeld, MD, PhD

- Worked as part of a team developing visual and auditory experimental paradigms in MATLAB/Python to analyze the neural correlates of normal conscious perception.
- Conducted analysis of broadband gamma power from intracranial EEG data acquired during a threshold auditory perception task.
- Part of a small group of postgraduate associates managing daily data backup, data storage, Linux server use, and equipment acquisition.

Johns Hopkins University, Baltimore, MD

Computer-Integrated Surgery Senior Design Project

Spring 2017

Mentors: Dr. Todd McNutt, MS, PhD & Prof. Russell Taylor, PhD

Team Members: **Christopher Micek**, Arun Raghavan, Julie Shade

- *Framework for Automatic Identification of Critical Regions of the Head and Neck for Refined Dose-Toxicity Analysis in Radiotherapy* — Worked on a team to develop a Python API for estimating dose administered in arbitrary regions during radio oncology radiotherapy sessions. Developed a pipeline to create statistical atlases of patient anatomy, register the atlas to arbitrary patients to create a deformation mapping, and accumulate dose statistics for delineated anatomical regions, as well as anatomy contoured in CT for validation.

Tokyo Institute of Technology, Tokyo, Japan

Visiting International Student/Vredenburg Scholar, Biomedical Engineering Lab

Summer 2016

Advisor: Dr. Tohru Yagi, PhD

- Developed proof-of-concept method of bidirectional brain-to-brain communication using a brain-computer interface.
- Evaluated information transference of brain waves (EEG) synchronized using steady state visually evoked potentials.

Journal Articles

[J6] **Christopher Micek** and Erin T. Solovey. 2025. Examining the Impact of Digital Jury Moderation on the Polarization of US Political Communities on Social Media. *Interacting with Computers* 37, 4: 234–252.

<https://doi.org/10.1093/iwc/iwae036>

[J5] Kate L. Christison-Lagay, Aya Khalaf, Noah C. Freedman, **Christopher Micek**, Sharif I. Kronemer, Mariana M. Gusso, Lauren Kim, Sarit Forman, Julia Ding, Mark Aksen, Ahmad Abdel-Aty, Hunki Kwon, Noah Markowitz, Erin Yeagle, Elizabeth Espinal, Jose Herrero, Stephan Bickel, James Young, Ashesh Mehta, Kun Wu, Jason Gerrard, Eyiymisi Damisah, Dennis Spencer, and Hal Blumenfeld. 2025. The neural activity of auditory conscious perception. *NeuroImage* 308: 121041. <https://doi.org/10.1016/j.neuroimage.2025.121041>

[J4] Qilong Xin, Sarit Forman, Kate L. Christison-Lagay, **Christopher Micek**, Sharif I. Kronemer, Mark Aksen, Lauren Grobois, Veronica Contreras Ramirez, Asha Khalaf, and David Jin. 2024. The Neural Basis of Attentional Blink as a Selective Control Mechanism in Conscious Perception. *bioRxiv*: 2024–03. In preparation. Pre-print available at <https://doi.org/10.1101/2024.03.30.587354>

[J3] Felix Putze, Susanne Putze, Merle Sagehorn, **Christopher Micek**, and Erin T. Solovey. 2022. Understanding HCI Practices and Challenges of Experiment Reporting with Brain Signals: Towards Reproducibility and Reuse. *ACM Transactions on Computer-Human Interaction* 29, 4: 1–43. <https://doi.org/10.1145/3490554>

[J2] Zongwei Yue, Isaac G. Freedman, Peter Vincent, John P. Andrews, **Christopher Micek**, Mark Aksen, Reese Martin, David Zuckerman, Quentin Perrenoud, and Garrett T. Neske. 2020. Up and down states of cortical neurons in focal limbic seizures. *Cerebral Cortex* 30, 5: 3074–3086. <https://doi.org/10.1093/cercor/bhz295>

[J1] Jiajia Li, Sharif I. Kronemer, Wendy X. Herman, Hunki Kwon, Jun Hwan Ryu, **Christopher Micek**, Ying Wu, Jason Gerrard, Dennis D. Spencer, and Hal Blumenfeld. 2019. Default mode and visual network activity in an attention task: Direct measurement with intracranial EEG. *Neuroimage* 201: 116003. <https://doi.org/10.1016/j.neuroimage.2019.07.016>

Refereed Full Conference Papers

[C4] **Christopher Micek**, Lasse Warnke, Lourenço Abrunhosa Rodrigues, Felix Putze, Erin T. Solovey. 2026. Capturing Team Cognition: A Multimodal Dataset for Adaptive Collaborative Interfaces. Conditionally accepted in *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI '26)*.

[C3] **Christopher Micek**, Erin T. Solovey. Team Brain-Computer Interfaces: Charting Opportunities, Concerns, and Guidelines for Future Collaborative Work. In preparation.

[C2] Alicia Howell-Munson, **Christopher Micek**, Ziheng Li, Michael Clements, Andrew C. Nolan, Jackson Powell, Erin T. Solovey, and Rodica Neamtu. 2022. BrainEx: Interactive Visual Exploration and Discovery of Sequence Similarity in Brain Signals. *Proceedings of the ACM on Human-Computer Interaction* 6, EICS: 1–41. <https://doi.org/10.1145/3534516>

[C1] **Christopher Micek**, Theerawit Wilaiprasitporn, and Tohru Yagi. 2016. A study on SSVEP-based brain synchronization: Road to brain-to-brain communication. In *2016 9th Biomedical Engineering International Conference (BMEiCON)*, 1–5. <https://doi.org/10.1109/BMEiCON.2016.7859615>

Dissertations and Theses

[D2] **Christopher Micek**. 2025. *Mindful Machines: Enabling HCI Research Exploring Novel Brain-Driven Interaction Paradigms for Collaboration*. Ph.D. Dissertation. Worcester Polytechnic Institute, Worcester, MA.

[D1] **Christopher Micek**. 2022. *Effects of Digital Jury Moderation on the Polarization of Social Media Users*. Master's Thesis. Worcester Polytechnic Institute, Worcester, MA.

Peer-Reviewed Workshop Papers

[W3] **Christopher Micek**, Erin T. Solovey. 2024. Physiological Signals for Teamwork: User-Centered Design of a Brain-Computer Interface to Enhance Creative Collaboration. *ACM CHI'24 Workshop on PhysioCHI: Towards Best Practices for Integrating Physiological Signals in HCI*.

[W2] **Christopher Micek**, Lourenço Abrunhosa Rodrigues, Asmus E. Eilks, Lasse Warnke, Felix Putze, Erin T. Solovey. 2024. Team Cognitive Informatics: Leveraging Brain Sensing to Assess and Augment Team Performance in Creative Collaboration. *ACM CHI'24 Workshop on the Future of Cognitive Personal Informatics*.

[W1] **Christopher Micek**, Zijian Guan, and Erin T. Solovey. 2021. Toward Understanding the Effects of Digital Jury Moderation on the Polarization of Social Media Users. *ACM CHI 2021 Workshop in Search of the Alternative Future: Developing Participatory Digital Citizenship to Address the Crisis of Democracy*.

Abstracts & Posters

[P7] **Christopher Micek**, Kate L. Christison-Lagay, Makana Williams, Sharif I. Kronemer, Wendy X. Herman, Jiajia Li, Lawrence J. Hirsch, Jason L. Gerrard, Dennis D. Spencer, and Hal Blumenfeld. 2018. Relationship between stimulus opacity and intracranial broadband gamma power in a conscious visual perception task. *Soc. Neurosci. Abstracts 2018*, Abstract No. 789.09. <https://www.abstractsonline.com/pp8/#!/4649/presentation/5351>.

[P6] Kate L. Christison-Lagay, **Christopher Micek**, Sharif I. Kronemer, Sarit Forman, Mark Aksen, Ahmad Abdel-Aty, Frederick van Duyne, Melanie Boly, Elsa Juan, Tom Bugnon, Bradley Postle, Erin Yeagle, Jose Herrero, Stephan Bickel, Ashesh Mehta, Lawrence J. Hirsch, Jason L. Gerrard, Dennis D. Spencer, and Hal Blumenfeld. 2018. Intracranial EEG provides a direct window to investigate auditory conscious perception. Talk at 6th Sixth Sesquiennial Yale Comprehensive Epilepsy Research Retreat.

[P5] Kate L. Christison-Lagay, **Christopher Micek**, Sharif I. Kronemer, Sarit Forman, Mark Aksen, Ahmad Abdel-Aty, Frederick van Duyne, Melanie Boly, Elsa Juan, Tom Bugnon, Bradley Postle, Erin Yeagle, Jose Herrero, Stephan Bickel, Ashesh Mehta, Lawrence J. Hirsch, Jason L. Gerrard, Dennis D. Spencer, and Hal Blumenfeld. 2018. Investigating auditory conscious perception with a threshold task and intracranial EEG. *Soc. Neurosci. Abstracts 2018*, Abstract No. 789.07. <https://www.abstractsonline.com/pp8/#!/4649/presentation/5352>.

[P4] Sarit Forman, Kate L. Christison-Lagay, **Christopher Micek**, Sharif I. Kronemer, Mark Aksen, Marvin M. Chun, Hal Blumenfeld. 2018. Potential novel mechanism for the attentional blink in a conscious perception task. *Soc. Neurosci. Abstracts 2018*, Abstract No. 789.11. <https://www.abstractsonline.com/pp8/#!/4649/presentation/5349>.

[P3] Jiajia Li, Sharif I. Kronemer, Hunki Kwon, **Christopher Micek**, Joshua Ryu, Mark Aksen, Wendy X. Herman, Ying Wu, Jason L. Gerrard, Dennis D. Spencer, and Hal Blumenfeld. 2018. Intracranial EEG topography of neural networks with transient and sustained shifts in attention. *Soc. Neurosci. Abstracts 2018*, Abstract No. 789.08. <https://www.abstractsonline.com/pp8/#!/4649/presentation/5350>.

[P2] Sharif I. Kronemer, Mark Aksen, Hunki Kwon, **Christopher Micek**, Kate L. Christison-Lagay, Sarit Forman, Jacob Prince, Jackson Ding, Joshua Ryu, Meenakshi Khosla, Erik Saberski, Umit Aydin, Christophe Grova, Jia Wu, Michael Crowley, R. Todd Constable, and Hal Blumenfeld. 2018. Early and late electrophysiological changes to visual conscious perception. *Soc. Neurosci. Abstracts 2018*, Abstract No. 789.10. <https://www.abstractsonline.com/pp8/#!/4649/presentation/5347>.

[P1] Sharif I. Kronemer, Sarit Forman, Joshua Ryu, Meenakshi Khosla, Erik Saberski, Wendy R. Xiao, R. Todd Constable, and Hal Blumenfeld. 2017. The cortical and subcortical neural mechanisms of visual perception. *Soc. Neurosci. Abstracts 2017*, Abstract No. 804.12. <https://www.abstractsonline.com/pp8/index.html#!/4376/presentation/30426>. Poster presented by **Christopher Micek** at the Society for Neuroscience annual meeting, Washington, DC, 2017.

Invited Talks & Panel Discussions

[T3] *Can ChatGPT Write My Thesis? A Student Panel on GenAI Tool Usage in Research*. [Chair of student panel organized by the WPI FORW-RD NRT Program Outreach Committee.] March, 2025, Worcester Polytechnic Institute, Worcester, MA.

[T2] *The Mind Unleashed: Enabling the Development of Novel Brain-Driven Interaction Paradigms for Learning and Collaboration*. [Guest lecture for Psi Beta Club at Quinsigamond Community College.] Quinsigamond Community College, Worcester, MA.

[T1] *JOINING FORCES: A Panel on Convergent Research*. [Panelist in student panel organized by the WPI FORW-RD NRT Program Outreach Committee.] March, 2024, Worcester Polytechnic Institute, Worcester, MA.

AWARDS, ACHIEVEMENTS & GRANTS

- Upsilon Pi Epsilon Computer Science Honor Society (2020 – 2025)
- Special Recognition for Outstanding Reviews:
 - ACM CHI Conference on Human Factors in Computing Systems (CHI) (2026)
 - ACM International Conference on Multimodal Interaction (ICMI) (2024, 2023)
- NSF Future of Robotics in the Workplace – Research & Development (FORW-RD) NRT Fellowship (2023): \$34,000 stipend
- WPI TA of the Year (2023): \$500
- WPI Graduate Leadership Award (2021)
- Vredenburg Scholarship (2016): \$8,000 stipend
- Intel Science Talent Search Semifinalist (2013)

OUTREACH & ACADEMIC SERVICE

Reviewer

Conferences:

- ACM CHI Conference on Human Factors in Computing Systems (CHI) (2026, 2023)
- ACM International Conference on Multimodal Interaction (ICMI) (2024, 2023)

Journals:

- Transactions on Computer-Human Interaction (TOCHI) (2023)
- IEEE Transactions on Affective Computing (2022)

Conference & Workshop Program Committee

2026	Associate Chair, Understanding People — Statistical and Quantitative Methods Subcommittee, CHI
2024, 2023	Program Committee Member, ICMI

Other

2023 – 2025	FORW-RD Outreach Committee
2020 – 2025	Upsilon Pi Epsilon

TEACHING AND MENTORING EXPERIENCE

Undergraduate Mentoring

Work Study

2024 – 2025	Henry Huang, Itzel Sanchez
2023	Tina Cheng, Huy Ho, Abbas Jivan

NSF Research Experience for Undergraduates (REU) in Data Science

Summer 2022	Khashayar Hatami, Maya Liao
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Early Research Experience in E Term (EREE)

Summer 2022	Nikola Grozdani, Humza Qureshi
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Summer 2020 Zijian Guan

Other Mentoring

Summer 2022 Graduate Mentor for NSF Research Experience for Teachers (RET)

Courses TA'ed

D Term, Spring 2025	Human-Computer Interaction (CS 3041)
B Term, Fall 2019	
C Term, Spring 2025	Operating Systems (CS 3103)
D Term, Spring 2023	Introduction to Machine Organization and Assembly Language (CS 2011)
C Term, Spring 2023	Object-Oriented Analysis and Design (CS 4233)
B Term, Fall 2022	Accelerated Object-Oriented Design Concepts (CS 2103)
A Term, Fall 2022	Data Mining and Knowledge Discovery in Databases (CS 4445)
A Term, Fall 2019	Foundations of Computer Science (CS 3133)

REFERENCES

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Hal Blumenfeld, MD, PhD

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