Kei Yoshida

Virtual Environment Navigation Lab (VENLab) kei.yoshida41@gmail.com
Brown University, Providence, RI, USA https://kyoshida14.github.io

EDUCATION

2020-Present **Brown University**, Providence, RI, USA
Ph.D. in Cognitive Science (Perception and Action)

- Dissertation: "*Pedestrian interactions at local and global levels in human crowds*" (Advisor: Dr. Willam H. Warren)

2023-Present **Brown University**, Providence, RI, USA
M.S. in Computer Science

2016-2020 **Coe College**, Cedar Rapids, IA, USA
B.A. in Computer Science and Psychology, *Magna Cum Laude*, Phi Beta Kappa

- Thesis: "*Perceptual-motor recalibration in naturalistic and virtual environments*" (Advisor: Dr. Benjamin Chihak)

RESEARCH EXPERIENCE

2023-Present **Dissertation Research**: "*Pedestrian interactions at local and global levels in human crowds*" (Advisor: Dr. Willam H. Warren)
Department of Cognitive and Psychological Sciences, Brown University

- Designed and conducted a behavioral experiment investigating the effects of covert and explicit leaders in walking crowds.
- Analyzing the data and simulating pedestrian trajectories using existing models of pedestrian behavior, using Python and Julia.

2020-2022 **Ph.D. First-Year Project**: "*Reconstruction of interaction networks in walking crowds*" (Advisor: Dr. Willam H. Warren)
Department of Cognitive and Psychological Sciences, Brown University

- Analyzed behavioral data to reconstruct the structure and dynamics of leadership interaction networks in human crowds.
- Applied a series of mathematical and statistical measure, such as Time-Dependent Delayed Correlation (TDDC) and network theory, using MATLAB and Python.

2024 **Visiting Research Scholar** (Collaborator: Dr. Mario di Bernardo)
Scuola Superiore Meridionale & University of Naples Federico II, Naples, Italy

- Conducted independent research on crowd dynamics, and collaborated with an interdisciplinary team of mathematicians and engineers to exchange knowledge on experimental psychology and modeling methods.
- Provided experimental data for analysis and received valuable feedback on research methodology.

2019-2020 **Senior Honors Thesis**: "*Perceptual-motor recalibration in naturalistic and virtual environments*" (Advisor: Dr. Benjamin Chihak)
Department of Psychology, Coe College

- Designed series of experiments systematically investigating recalibration effects in rotational locomotion in naturalistic and virtual environments.
- Developed a virtual environment in Unity, using C#.

2018-2019 **Research Project**: *Simple models of movement coordination account for limited portions of pedestrian road-crossing behavior in virtual environments* (Advisor: Dr. Benjamin Chihak)
Department of Psychology, Coe College

- Assisted in series of experiments investigating movement-coordination strategies used for gap-interception within a virtual environment created in Unity.

2018 **Research Project,** Dept. of Psychology, Coe College
Research Project: *How roadway design affects cyclist-motorist interactions* (Advisor: Dr. Benjamin Chihak)
Department of Psychology, Coe College

- Collected and analyzed data for experiment exploring the effects of roadway designs on behaviors of motorists.
- Created the program designed to work on a device used to collect a variety of data using Arduino software and hardware, using C++.

SKILLS

Programming & Software

Languages:	Python, MATLAB, C++, C#, Julia, Bash, SQL, HTML/CSS, C, JavaScript, R
Scientific & Data Software:	VS Code, Visual Studio, Jupyter Notebooks, SPSS Statistics Software, Paraview, RStudio
Operating Systems:	macOS, Windows, Linux
Game Engines:	Unity
Version Control:	Git, GitHub

Tools & Equipment

Virtual Reality	HTC Vive, Vive Controllers, SteamVR
Unmanned Aircraft Systems (UAS):	DJI Mavic 3 Pro (FAA Part 107 Certified)

Languages

Proficient in English & Japanese

PUBLICATIONS & PRESENTATIONS

Journal Articles, Conference Proceedings, & Published Thesis

Yoshida, K., Taylor, H., & Warren, W. H. (2025). The influence of explicit and covert leaders on human crowd motion. EPJ Web of Conferences, 334, 04010. https://doi.org/10.1051/epjconf/202533404010

Yoshida, K., di Bernardo, M., & Warren, W. H. (2025). *Visual influence networks in walking crowds*. bioRxiv. https://doi.org/10.1101/2025.01.29.635594

Warren, W. H., Falandays, J. B., **Yoshida, K.**, Wirth, T. D., & Free, B. A. (2024). Human crowds as social networks: Collective dynamics of consensus and polarization. *Perspectives on Psychological Science, 19*(2), 522–537. https://doi.org/10.1177/17456916231186406

Yoshida, K. (2020). *Perceptual-motor recalibration in naturalistic and virtual environments.* [Undergraduate thesis, Coe College]. Coe College Stewart Memorial Library. https://coecollege.on.worldcat.org/oclc/1258120465

Conference Presentations & Posters (Selected)

Yoshida, K., Feldmann, S., & Warren, W.H. (2025, September 11). *Simulating and Quantifying the Influence of Covert and Explicit Leaders on Human Crowd Motion* [Conference session]. Pedestrian and Evacuation Dynamics 2025, Prague, Czech.

Yoshida, K., Taylor, H., & Warren, W.H. (2024, December 4). *The Influence of Explicit and Covert Leaders on Human Crowd Motion* [Conference session]. Traffic and Granular Flow 2024, Lyon, France.

Yoshida, K., Taylor, H., & Warren, W. H. (2024). Can covert and explicit "leaders" steer and split real human crowds? *Journal of Vision, 24*(10), 1325–1325. https://doi.org/10.1167/jov.24.10.1325 (Poster presented for the Annual Meeting of the Vision Science Society, 2024, in St. Pete Beach, FL, USA).

Yoshida, K., & Warren, W. H. (2023, June 28). *Structural analysis and topological manipulation of visual influence networks in walking crowds* [Conference session]. Pedestrian and Evacuation Dynamics 2023, Eindhoven, Netherlands.

Yoshida, K., & Chihak, B. (2020, November 21). *The transfer of perceptual-motor recalibration between virtual and naturalistic environments* [Poster presentation]. 61st Annual Meeting of the Psychonomic Society, held virtually.

Chihak, B., **Yoshida, K.**, & Bordwell, J. (2019, November 15). *Simple models of movement coordination account for limited portions of pedestrian road-crossing behavior in virtual environments* [Poster presentation]. 60th Annual Meeting of the Psychonomic Society, Montreal, QC, Canada.

Yoshida, K., Shrestha, A., & Chihak, B. (2018, November 10). *How roadway design affects cyclist-motorist interactions* [Poster presentation]. 2018 Tri-State Undergraduate Psychology Conference, Loras College, Dubuque, IA, USA.

SCHOLARSHIP, AWARDS, & HONORS

2023-Present	Open Graduate Education Program, Brown University (two academic years of fellowship funding; equivalent to $228,345.50)
2025	The Peter D. Eimas Graduate Research Award ($1,000) Department of Cognitive and Psychological Sciences, Brown University
2020-2021	Kenneth R. and Pamela L. Galner Graduate Fellowship, Brown University (one academic year of fellowship funding; equivalent to $91,241)
2020	Richard H. Bahwell Prize in Psychology ($1,000), Coe College
2020	Phi Beta Kappa, National honor society
2018	Psi Chi, International honor society in Psychology

Other Honors & Membership

Scientific Societies: Vision Science Society (2021-2024), Psychonomic Society (2019-2021)
Honor Societies: Coe College Strata (2019), Mortar Board (2019), Alpha Lambda Delta (2017)

RELEVANT COURSES

Brown University (2020-Present)

Cognitive Science	Core Concepts in Cognitive and Psychological Sciences I & II, Perception and Action, Perceiving and Acting in 3D
Computer Science & Quantitative Courses	Data Science, Interdisciplinary Scientific Visualization, Computer Vision, Deep Learning, Statistical Inference, Human-Computer Interaction Seminar, Computer Systems, Applied Regression Analysis, Information Theory

Coe College (2016-2020)

Psychology	Research Methods, Statistical Methods and Data Analysis, Sensation and Perception, Memory & Cognition, Social Psychology, Introduction to Biopsychology, Organizational Psychology, Personality, Abnormal Psychology
Computer Science	Principles of Computer Graphics, Data Structures & Algorithms, Programming Languages, Interactive System Design, Object Oriented Programming, Software Engineering, Foundations of Computer Science & Advanced Mathematics

TEACHING EXPERIENCE

2019-Present **Teaching Assistant**

Brown University: Social Psychology, Learning and Conditioning, & Mind, Brain, and Behavior
Coe College: Statistical Methods and Data Analysis

2017-2020 **Tutor**, Coe College

Computer Science: Computer Science I & II, Data Structures and Algorithms
Psychology: Introductory Psychology, Research Methods, Statistical Methods and Data Analysis, Memory and Cognition, Organizational Psychology, Personality

SERVICE ROLES

2020-Present Diversity and Inclusion Action Plan (DIAP) Committee Member
Hiring and Recruitment Subcommittee Chair (2024-2025),
Department of Cognitive and Psychological Sciences, Brown University

2023-2024 International Graduate Peer Mentor, Brown University

2021-2022 Graduate Student Representative,
Department of Cognitive and Psychological Sciences, Brown University

2021, 2024 International Student Orientation Mentor, Brown University

2016-2020 International Club Executive Board (President, Vice President, Secretary),
Coe College

2018-2020 Diversity Inclusion Collaboration Team, Coe College

2017 International Students Orientation Leader, Coe College