

Education

Brown University

Ph.D., Cognitive Science (GPA: 4.0/4.0)

Advisors: Dr. William C. Heindel, Dr. Elena K. Festa

Providence, RI

2021 – 2026

University of British Columbia (UBC)

B.A., Cognitive Systems (Class 1 Standing)

Advisors: Dr. Ronald A. Rensink, Dr. Karon E. MacLean

Vancouver, BC

Graduation: 2020

Publications

1. Seifi, H., Fazlollahi, F., Oppermann, M., Sastrillo, J.A., **Ip, J.**, Agrawal, A., Park, G., Kuchenbecker, K.J., & MacLean, K.E. (2019). Haptipedia: Accelerating Haptic Device Discovery to Support Interaction and Engineering Design. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 1-12.
2. **Ip, J.**, Heindel, W.C., & Festa, E.K. (In prep). EEG Dynamics of Reentrant Binding and Executive Control Demands in Visual Search.
3. **Ip, J.**, Heindel, W.C., & Festa, E.K. (In prep). Theta and Alpha Oscillatory Signatures of Implicit Semantic Audiovisual Integration in Healthy Aging and Mild Cognitive Impairment.
4. **Ip, J.**, Heindel, W.C., & Festa, E.K. (In prep). Spectral Dynamics in Visual Conjunctive Memory Binding.

Talks, Conference Presentations & Workshops

1. **Ip, J.**, Heindel, W.C., & Festa, E.K. (Presenting in 2026). Theta and Alpha EEG Dynamics Reveal Altered Semantic Processing in Aging and MCI [Poster Presentation]. International Neuropsychological Society. Philadelphia, PA.
2. **Ip, J.** (2025). Alpha/Theta Characterization of Semantic Processing Dynamics in Healthy Aging and Mild Cognitive Impairment [Talk]. Cognitive and Psychological Sciences Social/Cognitive Seminar, Brown University. Providence, Rhode Island.
3. **Ip, J.** (2025). Agentic AI Workflows in AWS HealthOmics: A Multiomics Example [Talk]. Healthcare and Life Sciences Technical Forum, Amazon Web Services. Seattle, Washington.
4. **Ip, J.**, Heindel, W.C., & Festa, E.K. (2024). Differential Attentional Costs of Encoding Single- vs. Multiple-Feature Objects in Visual Working Memory: An ERP Study [Poster Presentation]. Object Perception, Visual Attention, and Visual Memory Conference. New York City, New York.
5. **Ip, J.**, Heindel, W.C., & Festa, E.K. (2024). Differential EEG Markers of Selective Attention and Feature Binding in Visual Search. [Poster Presentation, VSS 2024]. *Journal of Vision*, 24(10), 1066. <https://doi.org/10.1167/jov.24.10.1066>
6. **Ip, J.**, Heindel, W.C., & Festa, E.K. (2023). Age-Related Effects of Audiovisual Semantic Congruency on Living and Nonliving Object Perception [Poster Presentation]. Cognitive Neuroscience Society (CNS) 30th Annual Meeting. San Francisco, California.
7. **Ip, J.**, Chin, N., & Rensink, R. (2021). Correlation Perception in Scatterplots is Invariant to Dot Size. [Poster Presentation, VSS 2021]. *Journal of Vision*, 21(9), 2171. <https://doi.org/10.1167/jov.21.9.2171>
8. Seifi, H., **Ip, J.**, Agrawal, A., Kuchenbecker, K. J., & MacLean, K. E. (2019). Toward Expert-Sourcing of a Haptic Device Repository. *CHI Workshop on Crowds and Creativity*, 1-4.
9. Seifi, H., Fazlollahi, F., Oppermann, M., Sastrillo, J. A., **Ip, J.**, Agrawal, A., Tembo, T., Park, G., Kuchenbecker, K. J., & MacLean, K. M. (2019). Haptipedia: A Haptic Device Library to Support Interaction and Engineering Design [Poster Presentation]. DFP Design Showcase. Vancouver, Canada.
10. **Ip, J.***, Pertels, Y.*, Chai, W.*, & Thongprasert, S*. (2017). Image Transitions: Visual Search in the Dynamic World [Poster Presentation]. UBC Multidisciplinary Undergraduate Research Conference. Vancouver, Canada.

*Denotes equal contribution.

Selected Awards & Honors

Sigma Xi , Scientific Research Honor Society	2024
Manning Graduate Fellowship IV , Brown University	2022–2023
Conference Travel Fund , Brown University	2023, 2024
Elsevier/Vision Research Virtual Travel Award , Vision Sciences Society	2021
Undergraduate Student Research Award in Computer Science , NSERC (\$4,500)	2019

Research Experience

Department of Cognitive and Psychological Sciences, Brown University Ph.D. Student/Candidate	Providence, RI 08/2021 – Present
<ul style="list-style-type: none">– Designed and conducted human scalp electroencephalography (EEG), eye tracking, and psychophysical experiments to examine neurocognitive correlates of (audio)visual perception and visual memory using PsychToolbox, MATLAB, and E-Prime. Wrote analysis and neural signal preprocessing pipelines for running inferential statistical and computational analyses on high-dimensional time-series EEG (event-related spectral perturbations, spectral parameterization, transient cortical oscillations, and event-related potentials) and behavioral data using MATLAB, R, and Python.	
<i>Topics:</i> Cognitive Neuroscience, Sensory Perception, Aging	
Visual Cognition Lab, UBC Psychology Project Leader and Research Assistant with Dr. Ronald A. Rensink	Vancouver, BC 09/2016 – 04/2021
<ul style="list-style-type: none">– Investigated the influence of different visual attributes on the perception of correlation in data visualizations using applied psychophysics. Investigated the influence of spatial transformations on performance in feature and conjunctive visual search. Led and managed a team of undergraduate researchers for nine academic terms.	
<i>Topics:</i> Information Visualization, Vision Science, Perception, Psychophysics	
Max Planck Institute for Intelligent Systems & UBC Computer Science Research Assistant with Dr. Karon E. MacLean and Dr. Hasti Seifi	Vancouver, BC 04/2018 – 08/2019
<ul style="list-style-type: none">– Designed and conducted a user study on a novel haptic device library (Haptipedia), leading to an ACM CHI '19 publication. Co-led a study on crowdsourcing incentives on Haptipedia.	
<i>Topics:</i> Human-Computer Interaction, Haptics, Crowdsourcing	
Sensory Perception & Interaction Lab, UBC Computer Science Research Assistant with Dr. Karon E. MacLean and Paul Bucci	Vancouver, BC 01/2018 – 04/2018
<ul style="list-style-type: none">– Investigated the display and recognition of emotion in low fidelity robot designs. Simulated simple affective behavior through audio and graphical interfaces created with low-cost and rapid prototyping techniques.	
<i>Topics:</i> Robotics, Low-fidelity Prototyping	

Teaching Experience

Research Mentor , Brown University	Providence, RI
Undergraduate Students: Takemi Sono-Knowles (2025-Present), Andrew Hudak (2024-Present), Jillian Leahy (2024), Camila Dangot (2024)	
Graduate Teaching Assistant , Brown University	Providence, RI
CLPS 0702: Introduction to Clinical Psychology	01/2025 – 05/2025
CLPS 1702: Psychological Assessment	09/2024 – 12/2024
CLPS 1900: Research Methods and Design	01/2024 – 05/2024
CLPS 0010: Mind, Brain and Behavior (Head TA)	09/2023 – 12/2023
CLPS 1420: Cognitive Neuropsychology	01/2023 – 05/2023
CLPS 0010: Mind, Brain and Behavior	09/2022 – 12/2022
Led weekly sections, hosted weekly office hours, graded research papers and presentations, and managed teams of undergraduate and graduate TAs.	
Directed Studies Supervisor , UBC	Vancouver, BC

COGS 402: Research in Cognitive Systems 01/2020 – 04/2020
Supervised a senior thesis project in vision science. Mentored and monitored student progress on experimental design, coding, data analysis, and paper writing.

Workshop Instructor, UBC Visual Cognition Lab Vancouver, BC
Workshop on Psychophysics and Data Analysis Methods 03/2019
Designed and taught four workshop sessions on psychophysics methods.

Undergraduate Teaching Assistant, UBC Vancouver, BC
COGS 303: Research Methods in Cognitive Systems 09/2018 – 12/2018
Graded weekly written assignments, quizzes, in-class activities, and final research reports while providing academic support for 39 students through email, weekly office hours, and exam review sessions.

Other Work Experience

Amazon Web Services Seattle, WA
Summer Internship 06/2025 – 08/2025
Wrote and published API documentation and code samples for AWS HealthOmics, a cloud computing platform for large-scale bioinformatics analyses in precision medicine. Tested cloud-based agentic AI workflows for a neuroscientific use case. Presented a live demonstration and proof-of-concept findings at the healthcare and life sciences internal forum (50+ in attendance).
Technology: Amazon S3, EC2, IAM, CloudWatch, Docker, Git, VSCode, agentic AI and LLM prompting (Claude Sonnet 3.7)

Advesa Digital Solutions Inc. Burnaby, BC
Technical Writer 06/2020 – 06/2021
Wrote REST API and GUI documentation for e-commerce software.
Technology: Confluence, Postman, Swagger, JIRA

UBC Emerging Media Lab Vancouver, BC
Academic Assistant 11/2017 – 04/2018
Created and facilitated Virtual Reality and Brain-Computer Interface demos and workshops.
Technology: Virtual Reality (HTC Vive™), Brain-Computer Interface (Muse™ Headband)

Technical Skills

Programming Languages: MATLAB (proficient), R (proficient), Python (proficient), JavaScript, HTML/CSS, Java, C/C++

Research Software/Toolkits: PsychToolbox, EEGLAB, E-Prime, Git, L^AT_EX, MAXQDA

Quantitative Research Methodology: Scalp Electroencephalography (EEG), Event-Related Potential (ERP) Analysis, Event-Related Spectral Perturbation (ERSP) Analysis, Spectral Parameterization, Psychophysics, Eye Tracking, Visuomotor Tracking and Analysis

Qualitative Research Methodology: User Interviews, Usability Testing, User Interface Wireframing and Prototyping, Thematic Analysis

Service

CoPsy EEG Working Group, Co-Organizer Ongoing
Computational Cognitive Neuroscience Journal Club, Organizer 2024
CLPS IT/Communications Committee, Twitter Manager 10/2022 – 07/2023