Annabel Wing-Yan Fan

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EDUCATION

McGill University Montréal, QC
Ph.D. Integrative Program in Neuroscience 2021−present

University of Toronto Toronto, ON
Ph.D. Perception, Cognition & Cognitive Neuroscience GPA: 4.0/4.0 2019−2020

M.A. Perception, Cognition & Cognitive Neuroscience GPA: 3.85/4.0 2018−2019

University of Toronto Scarborough Toronto, ON
H.B.Sc. Neuroscience Co-op with High Distinction cGPA: 3.65/4.0, final 2 years: 3.86/4.0 2012−2017

RESEARCH EXPERIENCE

University of Toronto Toronto, ON
Research Assistant, Visual Cognitive Neuroscience Lab 2018−2020
Supervisors: Dr. Jonathan Cant & Dr. Matthias Niemeier

- Investigated the influence of ensemble processing on grasping behaviour using 3D motion tracking, electromyography, mixed effects modeling, and support vector machine classification techniques.
- Programmed experimental code in MATLAB, conducted data analysis in R. Designed and created stimuli using 3D printing and computer-assisted design software.

Toronto Rehabilitation Institute Toronto, ON
Research Assistant, Multisensory Integration in Virtual Environments Lab Jan−May 2020
Outside Project Supervisors: Dr. Jennifer Campos & Dr. Meaghan Adams

- Designed and implemented a data analysis pipeline including preprocessing, statistical analysis, and data visualizations for a study characterizing the influence of optic flow velocity on postural stability in middle-age and older adults.
- Demonstrated ability to rapidly synthesize literature and draft an organized introduction to the research study. Trained to administer tests of visual acuity, visual field dependence, and simulator sickness.

York University Toronto, ON
Guest Research Assistant, Centre for Vision Research May 2019
Supervisors: Dr. Lawrence Harris, Dr. Nils-Alexander Bury, & Meaghan McMannus

- Assisted with the collection of vection data from the visitors of the Ontario Science Centre in a collaborative project between York University and Canadian Space Agency using virtual reality technology.
- Engaged and educated the public on the perceptual phenomena of vection, the sensation of self-motion induced by visual stimulation.

University of Toronto Scarborough Toronto, ON
Research Assistant (RA) & RA Supervisor, Visual Cognitive Neuroscience Lab 2016−2017
Supervisors: Dr. Jonathan Cant & Sol Sun

- Designed and implemented a psychophysics experiment comparing the effect of inanimate vs. animate visual stimuli on ensemble orientation perception, using MATLAB and psychtoolbox.
- Oversaw research activities, and provided administrative support for 6 psychophysical experiments. Hired, trained, and supervised 6 RAs on data collection and entry. Performed quality assurance data checks, ensuring compliance to standard operating procedures and ethical research guidelines.

Centre for Addiction & Mental Health Toronto, ON
Co-op Research Assistant, Translational Addiction Research Lab 2014−2015
Supervisors: Dr. Bernard Le Foll, Dr. Saima Malik, & Dr. Patricia DiCiano

- Oversaw administrative duties and data collection for 4 neurostimulation (TMS) and imaging (PET, MRI) studies involving pharmacological interventions in control, smoking, and alcoholic populations, in an 8-month co-op placement.
- Conducted eligibility screening, administration of psychiatric interviews (M.I.N.I) questionnaires (TPQ, TLFB, BIS, BDI), biomonitoring, participant compliance and drug use testing. Prepared biological samples including blood plasma extraction, storage monitoring, and handling of shipments. Proposed a practical implementation of electronic data collection to improve data integrity in a work-term report.

PROFESSIONAL & TEACHING EXPERIENCE

Research Institute of the McGill University Health Centre   Montréal, QC
Research Assistant, Hess Lab   Summer 2020−present
Supervisors: Dr. Robert Hess & Dr. Alex Baldwin
- Developed cross-platform clinical measurement tools using Unity and C# for the treatment of amblyopia, as part of a research collaboration with industry partners, Novartis (pharmaceutical company) and Ubisoft (game development studio).
- Provided knowledge transfer for the development of regulation compliant digital medical products.
- Unified development environments for data analysis using Docker, Jupyter Notebook, and Git.

Unity Developer, Hess Lab   Summer 2018
Supervisors: Dr. Robert Hess & Dr. Alex Baldwin
- Explored the use of Microsoft's HoloLens Mixed Reality technology in vision research by developing psychophysics experiments and proof-of-concept features using Unity, C#, and Azure Web Services.
- Produced detailed documentation of the projects to act as a guide for future researchers working with the HoloLens.

Zebra Robotics   Mississauga, ON
Programming Instructior   Jan−June 2018
- Taught Lego Robotics, Tynker (drag-and-drop block coding), HTML, CSS, JavaScript, and Python to students grade 4−12.
- Created flexible problem sets which could be solved using different programming languages and targeted multiple skill levels, based on student feedback which suggested a need for additional creative problem solving exercises. Organized and developed programming challenges and judging requirements for the first in-house hackathon.
- Identified a skill gap in the existing curriculum between visual and text-based programming, initiated and supported the development of a game design course to address it.

University of Toronto   Toronto, ON
Teaching Assistant   2018−2020
NROC64, Sensorimotor Systems   2019−2020
PSYC14, Cross-cultural Social Psychology   2019
PSYB07, Advanced Data Analysis in Psychology   2018−2019
PSYA01, Introduction to Psychology   2018

Centre d'entraide du Marigot Café de la Concorde   Laval, QC
Kitchen and Meals-On-Wheels Delivery Assistant   July−Aug 2011
- Assisted in food preparation, tidying of the kitchen and dine-in café, and delivery of meals with a non-profit organization focused on home support services for elderly persons and individuals with loss of autonomy.
- Developed friendly relationships with customers, taking care to note individual meal preferences, health concerns, and topics of prior conversations to provide caring and engaging interactions.

PUBLICATIONS & PRESENTATIONS

Publications

Fan, A. W. Y., Guo, L. L., Frost, A., Whitwell, R. L., Niemeier, M., & Cant, J. S. (2021). Grasping of Real-world Objects Is Not Biased by Ensemble Perception. *Frontiers in Psychology*, *12*, 1158.

Presentations

Annabel Wing-Yan Fan, Lin Lawrence Guo, Adam Frost, Robert L. Whitwell, Matthias Niemeier, & Jonathan S. Cant. (2020, May 15−20). *Grasping real-world objects along ambiguous dimensions is not biased by ensemble perception.* Poster. Vision Sciences Society Conference. St. Pete Beach, Florida.

Annabel Wing-Yan Fan, Lin Lawrence Guo, Adam Frost, Robert L. Whitwell, Matthias Niemeier, & Jonathan S. Cant. (2019, February 6−7). *Is grasping real-world objects along ambiguous dimensions biased by ensemble statistics?* Poster. Lake Ontario Visionary Establishment. Niagara Falls, Ontario.

Annabel Wing-Yan Fan, Lin Lawrence Guo, Adam Frost, Robert L. Whitwell, Matthias Niemeier, & Jonathan S. Cant. (2019, December 12). *Is grasping real-world objects along ambiguous dimensions biased by ensemble statistics?* Poster. University of Toronto MA Poster Day. Toronto, Ontario.

Annabel, W.F., Alex, S.B., & Robert, F.H. (2018, August 13). *The HoloLens: Real-world Vision Testing.* Poster. Summer Student Research Day with the MUHC. Montréal, Québec.

Annabel, F., Sol, S., & Jonathan, C. (2017, June 13−16). *Effect of Animacy on Ensemble Orientation Perception.* Poster. Vision in the Real World Conference, York University. pp. 21. Toronto, Ontario.

Maithe, A.C., Duan, Y.Y., **Annabel, F.**, & Parandis, K. (2017, April 28). *CDPPB: A New Hope for Schizophrenia?* Poster. NeuroXChange Undergraduate Conference, McMaster University. Hamilton, Ontario.

Guest Lecturer

Cross-cultural Social Psychology: Reviewing Scientific Literature, University of Toronto Scarborough   2019

Workshop Instructor

Introduction to Unity, Trent University.   2021

GRANTS & SCHOLARSHIPS

University of Toronto Tuition Fellowship, University of Toronto   2018−2020
University of Toronto Fellowship, University of Toronto   2018−2020
Faculty of Arts & Science Program-Level Fellowship, University of Toronto   2019
Dean's List Scholar, University of Toronto   2016−2017

SKILLS

Research: Experienced in behavioural research methods, data collection, and data analysis. Familiar with 3D motion tracking, EMG, EEG, and head-mounted virtual/mixed reality technologies. Experienced in participant recruitment and screening, including: managing participant databases, preparing online and physical advertisements, and conducting/assessing clinical surveys and interviews (MINI, TPQ, TLFB, BDI). Trained in animal handling, research ethics, and biosafety training.

Programming: Competent in C#, Unity, R, R Markdown, and Git. Familiar with MATLAB, Python, Jupyter Notebook, Affinity Designer, GIMP, and Blender. Basic knowledge of HTML, CSS, JavaScript, R Shiny, Docker, SPSS, and LaTeX.

LEADERSHIP & ACADEMIC ACTIVITIES

University of Toronto   Toronto, ON

Creative Applications of Mobile Devices Course, Graduate School of Electrical & Computer Engineering   2020
- Collaborated on an interdisciplinary team with 2 graduate-level programmers using Agile methodologies to re-develop and extend a lab-based psychophysics experiment into an Android game for children.
- Identified and defined the feature requirements of the game using research experience in the field of perception and cognition. Produced deliverables, such as tech demos, documentation, and presentations, within a strict timeline. Conducted quality assurance testing including the creation and tracking of issues on GitHub. Designed the user interface and 2D graphics.
- Project link: www.eecg.utoronto.ca/ jayar/ece1778/projects-videos-reports.html

Logistics Coordinator, PsychHacks 2019   2019
- Organized the first graduate level psychology hackathon at the University of Toronto. Secured facilities, equipment, and catering for the 2-day overnight event. Conceptualized and generated hackathon challenges, judging criteria, and outreach strategies to participants and workshop guests.
- Facilitated the smooth distribution of datasets and project submission using GitHub Classroom. Taught version control system basics using Git and GitHub using an engaging and teambuilding icebreaker activity.

GlobalAI Hackathon Participant   2017
- Worked collaboratively to create the web application "LegitiMate" which evaluated the authenticity of news articles using natural language processing. Designed and developed the app branding, front-end website, and Facebook chat bot.

University of Toronto Scarborough (UTSC)   Toronto, ON

Campus Tour Organizer   2019−2021
- Co-organized campus tours for graduate students, highlighting key facilities, community groups, and resources at UTSC.
- Redesigned materials and sourced images to create a virtual campus tour presentation used for graduate recruitment.

Advisory Committee Member, Academic Advising & Career Centre   2019
- Represented student interests by giving feedback on university initiatives and voting on budget allocations for the upcoming academic year as the graduate student representative.

1st Place & Judges Selection in Maker Contest 2019

- Won the UTSC Maker Contest using experimental stimuli modelled in Blender and printed using 3D printers from the UTSC Makerspace.
- Project link: www.thingiverse.com/thing:3499725

George Brown College   Toronto, ON
Toronto Game Jam Participant 2018

- Created a game using Unity in a small team over 3 days during the 2018 Toronto Game Jam. Designed and generated all 3D models and visual assets.

Advanced Analytics and Research Lab   Toronto, ON
Introduction to Data Science Workshop Attendee 2017

- Completed an 8-hour bootcamp on data science, covering concepts and exercises in statistics, analytics, programming in R, machine learning, and data visualization.

MaRS Discovery District   Toronto, ON
DementiaHack Participant 2017

- Researched common challenges faced by dementia patients and their caregivers to guide the development of "Gentle Assistant" a customizable, multimedia scheduling platform.
- Presented application demos, supported user interface design, and provided testing and feedback on user experience.