CURRICULUM VITAE

Michael Brandon Haworth

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0. EXECUTIVE SUMMARY

Tenured Associate Professor in the Department of Computer Science, Faculty of Engineering and Computer Science at the University of Victoria focused on the representative modelling of humans for simulation, design, and media. I am the director of the Graphics, Artificial Intelligence, Design, & Games (GAIDG) Lab and a research fellow at the Institute on Aging & Lifelong Health at the University of Victoria. Published 18 journal articles, 23 conference papers, 3 book chapters, 10 workshop papers, 10 posters, and numerous presentations on the topics of graphics, animation, simulation, games, rehabilitation, design, and artificial intelligence. Officially supervising (or supervised) 42 student roles (4 PhD, 7 Master's, 31 Undergraduate), unofficially advised/mentored 15 student roles (3 PhD, 5 Masters, 7 Undergraduate), as well as, serving on numerous supervisory committees. I have held multiple teaching roles across course instructorships (16), teaching assistantships (17), as well as, developing, teaching and directing programs for secondary school students and professional micro-credentials. A lifetime volunteer dedicated to professional service, serving as a board member and the director of technical development of the Canada Comics Open Library non-profit, the editor-in-chief of the Canadian Human-Computer Communications Society (CHCCS) / Société canadienne du dialogue humain-machine, an associate editor of the Computer Animation and Virtual Worlds journal, the honours advisor of the Department of Computer Science at the University of Victoria, a frequent peer reviewer, as well as, on conference program committees (31 memberships, received outstanding reviewer recognition), conference organizing/executive committees (3), and academic committees (8).

1. PERSONAL

Nationality:	American, British, and Permanent Resident of Canada
Language(s):	English

2. MAIN ACADEMIC INTERESTS

- Computer Graphics
- Computer Animation
- Human-Centred Artificial Intelligence
- Agent-based Modelling and Crowd Simulation
- Game Design and Development
- Human Computer Interaction
- Virtual Reality
- Computer Vision
- Architectural Design and Optimization
- Assistive and Healthcare Technologies
- Behavioural Sciences
- Rehabilitation Sciences

3. PROFESSIONAL ASSOCIATIONS

- Member ACM
- Member Canadian Human-Computer Communications Society, CHCCS/SCDHM Special Interest Group within the Canadian Information Processing Society (CIPS)

4. EDUCATION

- September 2014 – September 2019: **Ph. D.**, Computer Science at York University, Department of Electrical Engineering and Computer Science

    - Thesis: Biomechanical Locomotion Heterogeneity in Synthetic Crowds
    - Supervisor: Petros Faloutsos
    - Including NSERC Create Program in Data Analytics & Visualization (*2yrs*)
- 01/2013 – 01/2016: **M.Sc.**, Computer Science at York University, Department of Electrical Engineering and Computer Science
    - Thesis: Computer Games for Motor Speech Rehabilitation
    - Supervisors: Petros Faloutsos & Melanie Baljko
- 09/2008 – 12/2012: **B.Sc.**, **Hons.**, Computer Science at York University, Department of Electrical Engineering and Computer Science
    - Including 2011 International Summer School in Computer Science
        - Computer Vision with Xenophon Zabulis at ICS/FORTH, Heraklion, Greece

5. RESEARCH POSITIONS

- July 2020 – Present: **Director** of the Graphics, Artificial Intelligence, Design, & Games (GAIDG) Lab in the Department of Computer Science at the University of Victoria, Victoria, Canada
- 12/2019 – 06/2020: **Post-Doctoral Fellow** with the Ontario Research Fund/Intelligent Systems for Sustainable Urban Mobility (ORF/ISSUM) in the Department of Electrical Engineering and Computer Science at York University, Toronto, Canada
- 01/2013 – 11/2019: **Graduate Researcher/Research Assistant** at the Graphics and Multimedia at York (GaMaY) Lab in the Department of Electrical Engineering and Computer Science at York University, Toronto, Canada
- 02/2016 – 02/2017: **Developer and Consultant** at the Speech Production Lab in the Department of Speech-Language Pathology at the University of Toronto
- 01/2013 – 02/2017: **Graduate Researcher/Trainee** at the Vocal Tract Visualization Lab in the Communication Team at the UHN: Toronto Rehabilitation Institute
- 01/2013 – 02/2016: **Research Assistant** at the Speech Production Lab in the Department of Speech-Language Pathology at the University of Toronto
- 06/2012 – 12/2012: **Undergraduate Researcher** at the Graphics and Multimedia at York (GaMaY) Lab in the Department of Electrical Engineering and Computer Science at York University, Toronto, Canada
- 06/2012 – 12/2012: **Research Assistant** at the Sunnybrook Health Sciences Centre

6. RESEARCH AFFILIATIONS

- **Director** Graphics, Artificial Intelligence, Design, & Games (GAIDG) Lab
- **Research Fellow** at the Institute on Aging & Lifelong Health (IALH)
- **External Collaborator** Graphics and Multimedia at York (GaMaY)
- **External Collaborator** Rutgers Intelligent Visual Interfaces Lab (IVI)
- **External Collaborator** Intelligent Systems for Sustainable Urban Mobility (ISSUM)
- **Affiliate Alumnus** UBC Motion Control and Character Animation group (UBCMOCCA)
- **Alumnus** University of Toronto Speech Production Lab (SPL)
- **Alumnus** UHN: Toronto Rehabilitation Institute Vocal Tract Visualization Lab (VTV)
- **Alumnus** Practices in Enabling Technologies Lab (PiET)
- **Alumnus** Centre for Innovation in Information Visualization and Data-Driven Design (CIVDDD)
- **Alumnus** Sunnybrook Health Sciences Centre

7. INDUSTRY POSITIONS

- February 2018 – August 2018: **Research and Development Intern** *(Virtual Reality and Spatial Analysis Expert)* at Teeple Architects, Toronto, Canada
- 07/2017 – 08/2017: **Research and Development Intern** *(Virtual and Augmented Reality Expert)* at Programize Hellas S.A., Athens, Greece

8. SUPPORT

Research Funding & Awards

- 2025 – 2026: Mitacs and Chimera Innovation. Accelerate, **Academic Supervisor**, University of Victoria
  Chimera One – Real-Time AI Mission Autonomy for UAV Operation
    - Intern: Daehwan (David) Kim
    - Total: $15,000 CAD

- 2025 – 2026: Digital Research Alliance of Canada (formerly Compute/Calcul Canada) **Principal Investigator**, University of Victoria
  Graphics, Artificial Intelligence, Design, and Games Lab
  - 1,056 core years, 10 RGU years
  - Total estimated value: $127,482 CAD
- 2024 – 2026: Mitacs and Cognia AI Inc. eAccelerate, **Principal Investigator**, University of Victoria
  Advanced 3D Reconstruction and Rendering for Dynamic Digital Twins and Digital Humans in Cyber-Physical Systems
  - Intern: Todd Charter
  - Total: $90,000 CAD
- 2024 – 2028: Canada Foundation for Innovation (CFI) John R. Evans Leaders Fund (JELF) and British Columbia Knowledge Development Fund (BCKDF), **Principal Investigator**, University of Victoria
  Human Motion at the Intersections of Engineering and Art through Extended Realities
  - Co-Applicants: Kevin Kerr, Yvonne Coady
  - CFI: $100,000 CAD
  - BCKDF: $100,000 CAD
  - Eligible Partners: $50,000 CAD
  - Total: $250,000 CAD
- 2024 – 2025: Digital Research Alliance of Canada (formerly Compute/Calcul Canada) **Principal Investigator**, University of Victoria
  Graphics, Artificial Intelligence, Design, and Games Lab
  - 192 core years, 13 RGU years
  - Total estimated value: $35,554 CAD
- 2023 – 2024: Digital Research Alliance of Canada (formerly Compute/Calcul Canada) Fast-Tracked Resources for Research Groups 2023, **Principal Investigator**, University of Victoria
  Graphics, Artificial Intelligence, Design, and Games Lab
  - 365 core years, 10 TB storage, 11 TB nearline
  - Total estimated value: $38,848 CAD
- 2022 – 2023: W.E. Cowie Faculty Innovation Award, **Principal Investigator**, University of Victoria
  Title Withheld
  - Total: $8,000 CAD
- 2022 – 2023: Compute/Calcul Canada Resources for Research Groups 2022, **Principal Investigator**, University of Victoria
  Graphics, Artificial Intelligence, Design, and Games Lab
  - 512 core years, 2 GPU years, 12 TB storage, 11 TB nearline
  - Total estimated value: $69,102 CAD
- 2021 – 2026: NSERC Discovery Grant, **Principal Investigator**, University of Victoria
  Diverse Synthetic Crowds in Media, Design, and Analysis
  - $24,000 CAD per year for 5 years
  - $12,500 CAD Early Career Researcher Supplement for year 1
  - Total: $132,500 CAD

Scholarly Funding & Awards

- 2022 – 2023: PIMS Seminar Series, **Co-Applicant**, University of Victoria
  Mathematics of Ethical Decision-Making Systems
  - Co-Applicants: Nishant Mehta, Sowmya Somanath, Valerie King
  - Total: $9,000 CAD

Teaching and Teaching Development

- 2023 – 2024: B.C. Micro-Credential Initiative Program (x2) (**Consultant/Course Developer/Director/Instructor**)
  2D Graphics and Processing Essentials for Video Games, and *3D Graphics and Rendering Essentials for Video Games.*
  - Total: $268,000 CAD+

Undergraduate Student Research Funding & Awards *(as Principal Investigator/Supervisor)*

- 2024 – 2025: Jamie Cassels Undergraduate Research Award
  - Liam Shatzel
  - Total: $1,500 CAD

- 2023: NSERC Undergraduate Student Research Award
  - Steven Bobyn
  - Total: $6,000 CAD
- 2022: W. E. Cowie Innovation Award
  - Colin Johnson
  - Total: $20,000 CAD
- 2022 – 2023: Jamie Cassels Undergraduate Research Award
  - Steven Bobyn
  - Total: $1,500 CAD
- 2022: Valerie Kuehne Undergraduate Research Award
  - Liam Shatzel
  - Total: $7,500 CAD
- 2021 – 2022: Jamie Cassels Undergraduate Research Award
  - Colin Johnson
  - Total: $1,500 CAD
- 2021: W. E. Cowie Innovation Award
  - Yiping Wang
  - Total: $18,000 CAD
- 2021: NSERC Undergraduate Student Research Award
  - Jonas Buro
  - Total: $6,000 CAD
- 2020 – 2021: Jamie Cassels Undergraduate Research Award
  - Yiping Wang
  - Total: $1,500 CAD

Funding & Awards Prior to Faculty Position

- 2019 – 2020: Ontario Research Fund (ORF/ISSUM), Post-Doctoral Fellowship
- 2017 – 2019: NSERC CreateDAV (Ph.D.)
- 2016 – 2019: York Graduate Fellowship (Ph.D.)
- 2018: Compute Canada Resources for Research Groups (RRG) Allocations (Ph.D.)
- 2017: Graduate Development Fund (Seoul, South Korea) (Ph.D.)
- 2016: Graduate Development Fund (Geneva, Switzerland) (Ph.D.)
- 2014 – 2015: York Graduate Scholarship (Ph.D.)
- 2014: Bridgeable–Bridging the Gap Award (TalkBox, Assistive Speech Generating Device)
- 2013 – 2014: York Graduate Scholarship (M.Sc.)
- 2011: York International Mobility Award (ICS/FORTH, Heraklion, Greece) (B.Sc.)
- 2011: IDCS IAM Award (ICS/FORTH, Heraklion, Greece) (B.Sc.)
- 2010: TD Meloche Monnex Bursary (B.Sc.)
- 2009: GM Bursary for Undergraduate Students in COSC (B.Sc.)
- 2008: Queen Elizabeth II Aiming for the Top Scholarship (B.Sc.)

9. PUBLICATIONS AND SCHOLARLY PRESENTATIONS

** shared first authorship*

Preprints

[1] Jin, Y., & **Haworth, B.** (2025). Back to Basics: Motion Representation Matters for Human Motion Generation Using Diffusion Model. arXiv preprint arXiv:2512.04499.

[2] Liu, Y., Shatzel, L., **Haworth, B**., & Schneider, T. (2025). Emergent Crowds Dynamics from Language-Driven Multi-Agent Interactions. arXiv preprint arXiv:2508.15047.

[3] Zaouali, M. C., Charter, T., Karpichev, Y., **Haworth, B.**, & Najjaran, H. (2025). A study of the framework and real-world applications of language embedding for 3d scene understanding. arXiv preprint arXiv:2508.05064.

Book Chapters

[4] **Haworth, B.**, Johnson, C., & Schwartz, M. (2023). Universal Design of Signage Through Virtual Human Simulation. In Cultural Space on Metaverse (pp. 53-67). Singapore: Springer Nature Singapore.

[5] Usman, M., **Haworth, B.**, Berseth, G., Faloutsos, P., Kapadia, M. (2021). Towards Democratizing Human-Building Simulation and Analytics in F. S. Roberts and I. A. Sheremet (Eds.), *Resilience in the Digital Age* LNCS 12660 (pp. 157–171). Springer Nature Switzerland AG.

[6] Berseth, G., Kapadia, M., **Haworth, B.**, Faloutsos, P. (2016). SteerFit: Automated Parameter Fitting for Steering Algorithms in N. Pelechano, J. M. Allbeck, M. Kapadia, N. I. Badler Editor (Ed.), *Simulating Heterogeneous Crowds with Interactive Behaviours* (pp. 197–213). Boca Raton, FL: CRC Press, Taylor & Francis Group.

Journal Articles

[7] Yang, S., Usman, M., Hassan, A., Sohn, G., Faloutsos, P., & **Haworth, B.** (2025). Digital twin-based evaluation of tactical interventions for high-density pedestrian environments. *Geo-spatial Information Science*, 1-19.

[8] Schwartz, M., **Haworth, B.**, Faloutsos, P., & Kapadia, M. (2024). Comparison of design education documents and the disconnect between designer priorities, tools, and occupant assumptions. *Architectural Science Review*, 1-13.

[9] Marney, B., **Haworth, B.** (2024). Toward comprehensive Chiroptera modeling: A parametric multiagent model for bat behavior. *Computer Animation and Virtual Worlds*, 35(3), e2251.

[10] Johnson, C., **Haworth, B.** (2022), Cognitive Model of Agent Exploration with Vision and Signage Understanding. *Computer Graphics Forum*, 41: 143-154.

- Journal publication of Johnson, C., **Haworth, B.** (2022, September). Cognitive Model of Agent Exploration with Vision and Signage Understanding. In Proceedings of the 21st ACM SIGGRAPH / EUROGRAPHICS Symposium on Computer Animation (SCA 2022). ACM.

[11] Kremer, M., Caruana, P., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2022). Automatic estimation of parametric saliency maps (PSMs) for autonomous pedestrians. *Computers & Graphics*, 104, 86-94.

[12] Hu, K.*, **Haworth, B.***, Berseth, G., Pavlovic, V., Faloutsos, P., Kapadia, M. (2021). Heterogeneous Crowd Simulation using Parametric Reinforcement Learning. *IEEE Transactions on Visualization and Computer Graphics.*

[13] Usman, M., **Haworth, B.**, Faloutsos, P., Kapadia, M. (2021). Simulation-as-a-Service: Analyzing Crowd Movements in Virtual Environments. *Computer Animation and Virtual Worlds*, e1990.

[14] Kremer, M., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2021). Modelling distracted agents in crowd simulations. *The Visual Computer*, 37(1), 107-118.

[15] [*Featured Article, Best Paper 2021 Runner-up*] **Haworth, B.**, Usman, M., Schaumann, D., Chakraborty, N., Berseth, G., Faloutsos, P., Kapadia, M. (2020). Gamification of Crowd-Driven Environment Design. *IEEE Computer Graphics and Applications*, 41(4), 107-117.

[16] Berseth, G.*, **Haworth, B.***, Usman, M.*, Schaumann, D., Khayatkhoei, M.*, Kapadia, M., Faloutsos, P. (2019). Interactive Architectural Design with Diverse Solution Exploration. *IEEE Transactions on Visualization and Computer Graphics,* 27(1), 111-124.

[17] Zhang, X., Schaumann, D., **Haworth, B.**, Faloutsos, P., Kapadia, M. (2019). Coupling agent motivations and spatial behaviors for authoring multiagent narratives. *Computer Animation and Virtual Worlds*, 30(3-4), e1898.

[18] Kearney, E., **Haworth, B.**, Scholl, J., Faloutsos, P., Baljko, M., Yunusova, Y. (2018). Treating Speech-Movement Hypokinesia in Parkinson's Disease: Does Movement Size Matter? *Journal of Speech, Language, and Hearing Research*, 61(11), 2703-2721.

[19] **Haworth, B.**, Kearney, E., Faloutsos, P., Baljko, M., Yunusova, Y. (2018). Electromagnetic articulography (EMA) for real-time feedback application: computational techniques. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, Advance Online Publication*.

[20] Kearney, E., Giles, R., **Haworth, B.**, Faloutsos, P., Baljko, M., Yunusova, Y. (2017). Sentence-Level Movements in Parkinson's Disease: Loud, Clear, and Slow Speech. *Journal of Speech, Language, and Hearing Research*, 60(12), 3426-3440.

[21] Yunusova, Y., Kearney, E., Kulkarni, M., **Haworth, B.**, Baljko, M., Faloutsos, P. (2017). Game-based augmented visual feedback for enlarging speech movements in Parkinson's disease. *Journal of Speech, Language, and Hearing Research*, 60(6S), 1818-1825.

[22] **Haworth, B.**, Usman, M., Berseth, G., Kapadia, M., Faloutsos, P. (2017). On density–flow relationships during crowd evacuation. *Computer Animation and Virtual Worlds*, 28(3-4), e1783.

[23] **Haworth, B.**, Usman, M., Berseth, G., Khayatkhoei, M., Kapadia, M., Faloutsos, P. (2017). CODE: Crowd-optimized design of environments. *Computer Animation and Virtual Worlds*, 28(6), e1749.

[24] Berseth, G., Usman, M., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2015). Environment optimization for crowd evacuation. *Computer Animation and Virtual Worlds*, 26(3-4), 377-386.

Refereed Conference Papers

[25] Ferreira, D., Shatzel, L., **Haworth, B.** (2024, November). Deformable Elliptical Particles for Predictive Mesh-Adaptive Crowds. In *Proceedings of the 17th ACM SIGGRAPH Conference on Motion, Interaction and Games*.

[26] Kremer, M., Caruana, P. N., **Haworth, B**., Schwartz, M., Kapadia, M., Faloutsos, P. (2023, May). Saliency Driven Gaze Control for Autonomous Pedestrians. In *Proceedings of Graphics Interface 2023*.

[27] Schwartz, M., **Haworth, B**., Usman, M., Kapadia, M., Faloutsos, P. (2022, September). Impact of Manikin Display on Perception of Spatial Planning. In *Proceedings of SAP '22: ACM Symposium on Applied Perception*. ACM.

[28] Johnson, C., **Haworth, B**. (2022, September). Cognitive Model of Agent Exploration with Vision and Signage Understanding. In *Proceedings of the 21st ACM SIGGRAPH / EUROGRAPHICS Symposium on Computer Animation (SCA 2022)*. ACM.

[29] Kremer, M., Caruana, P., **Haworth, B.**, Kapadia, M., & Faloutsos, P. (2021, November). PSM: Parametric saliency maps for autonomous pedestrians. In *Proceedings of the 14th ACM SIGGRAPH Conference on Motion, Interaction and Games* (pp. 1-7).

[30] Ferreira, D., **Haworth, B.** (2021, October). DeepSolfège: Recognizing Solfège Hand Signs Using Convolutional Neural Networks. In *International Symposium on Visual Computing (ISVC 2021) (pp. 39-50). Springer, Cham.*

[31] **Haworth, B.***, Berseth, G.*, Moon, S., Faloutsos, P., Kapadia, M. (2020, October). Deep Integration of Physical Humanoid Control and Crowd Navigation. In *Proceedings of the 13th ACM SIGGRAPH International Conference on Motion, Interaction and Games (MIG 2020)*. ACM.

[32] Kremer, M., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2020, October). Watch Out! Modelling Pedestrians with Egocentric Distractions. In *Proceedings of the 13th ACM SIGGRAPH International Conference on Motion, Interaction and Games (MIG 2020)*. ACM.

[33] Usman, M., Schaumann, D., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2019, October). Joint Exploration and Analysis of High-Dimensional Design–Occupancy Templates. In *Proceedings of the 12th ACM SIGGRAPH International Conference on Motion, Interaction and Games (MIG 2019)* (p. 35). ACM.

[34] Zhang, X., Schaumann, D., **Haworth, B.**, Faloutsos, P., Kapadia, M. (2019, April). Multi-Constrained Authoring of Occupant Behavior Narratives in Architectural Design. In *Proceedings of the Symposium on Simulation for Architecture & Urban Design (SimAUD 2019).*

[35] Usman, M., Schaumann, D., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2019, June). Joint Parametric Modeling of Buildings and Crowds for Human-Centric Simulation and Analysis. In *Proceedings of the International Conference on Computer-Aided Architectural Design Futures (CAAD Futures 2019)* (pp. 279-294). Springer, Singapore.

[36] Schaumann, D., Sohn, S., Usman, M., **Haworth, B.**, Faloutsos, P., Kapadia, M. (2019, June). Spatio-Temporal Affordance Maps for Occupancy Simulation in Architectural Design. In *Proceedings of the International Conference on Computer-Aided Architectural Design Futures (CAAD Futures 2019), Online.*

[37] Usman, M., Schaumann, D., **Haworth, B.**, Berseth, G., Kapadia, M., Faloutsos, P. (2018, November). Interactive Spatial Analytics for Human-Aware Building Design. In *Proceedings of the 11th ACM SIGGRAPH International Conference on Motion, Interaction, and Games (MIG 2018)* (p. 13). ACM.

[38] Usman, M., **Haworth, B.**, Berseth, G., Kapadia, M., Faloutsos, P. (2017, November). Perceptual evaluation of space in virtual environments. In *Proceedings of the 10th ACM SIGGRAPH International Conference on Motion in Games (MIG 2017)* (p. 16). ACM.

[39] Chakraborty, N.*, **Haworth, B.***, Usman, M., Berseth, G., Faloutsos, P., Kapadia, M. (2017, November). Crowd sourced co-design of floor plans using simulation guided games. In *Proceedings of the 10th ACM SIGGRAPH International Conference on Motion in Games (MIG 2017)* (p. 1). ACM.

[40] **Haworth, B.**, Usman, M., Baljko, M., Hamidi, F. (2016, July). The Use of Working Prototypes for Participatory Design with People with Disabilities. In *Proceedings of the 16th International Conference on Computers Helping People with Special Needs (ICCHP 2016)* (pp. 134-141). Springer, Cham.

[41] **Haworth, B.**, Usman, M., Berseth, G., Khayatkhoei, M., Kapadia, M., Faloutsos, P. (2016, May). Towards computer assisted crowd aware architectural design. In *Proceedings of the 2016 ACM CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI 2016)* (pp. 2119-2125). ACM.

[42] **Haworth, B.**, Usman, M., Berseth, G., Kapadia, M., Faloutsos, P. (2015, November). Evaluating and optimizing level of service for crowd evacuations. In *Proceedings of the 8th ACM SIGGRAPH International Conference on Motion in Games (MIG 2015)* (pp. 91-96). ACM.

[43] Berseth, G., **Haworth, B.**, Kapadia, M., Faloutsos, P. (2014, November). Characterizing and optimizing game level difficulty. In *Proceedings of the 7th ACM SIGGRAPH International Conference on Motion in Games (MIG 2014)* (pp. 153-160). ACM.

[44] Berseth, G., Kapadia, M., **Haworth, B.**, Faloutsos, P. (2014, July). SteerFit: Automated parameter fitting for steering algorithms. In *Proceedings of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2014)* (pp. 113-122). Eurographics Association.

[45] **Haworth, B.**, Baljko, M., Faloutsos, P. (2012, December). PhoVR: a virtual reality system to treat phobias. In *Proceedings of the 11th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications in Industry (VRCAI 2012)* (pp. 171-174). ACM.

[46] Shtern, M., **Haworth, B.**, Yunusova, Y., Baljko, M., Faloutsos, P. (2012, November). A game system for speech rehabilitation. In *Proceedings of the 5th International Conference on Motion in Games (MIG 2012)* (pp. 43-54). Springer, Berlin, Heidelberg.

[47] **Haworth, B.**, Baljko, M., Faloutsos, P. (2012, November). Treating Phobias with Computer Games. In *Proceedings of the 5th International Conference on Motion in Games (MIG 2012)* (pp. 374-377). Springer, Berlin, Heidelberg.

Refereed Workshop Papers

[48] **Haworth, B**., Schwartz, M. (2022, August). Universal Design of Signage through Virtual Human Simulation. In *The 4th Cultural DNA Workshop*.

[49] **Haworth, B.**, Kapadia, M., Faloutsos, P. (2021, November). Representative Synthetic Crowds for Inclusive Environment Design. In *2021 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR 2021)* (pp. 150-153). IEEE.

[50] Wang, Y., **Haworth, B.** (2021, July). MASAI: Multi-agent Summative Assessment Improvement for Unsupervised Environment Design. At the *Unsupervised Reinforcement Learning Workshop*. International Conference on Machine Learning 2021 (ICML 2021).

[51] (Invited talk) **Haworth, B.** (2021, January). Learning to Move - Reinforcement Learning in Navigation. At the *Neuro-Cognitive Modeling of Humans and Environments Workshop*. 29th International Joint Conference on Artificial Intelligence and the 17th Pacific Rim International Conference on Artificial Intelligence (IJCAI 2021).

[52] Berseth, G., **Haworth, B.,** Kapadia, M., Faloutsos, P. (2019, December). Multi-Agent Hierarchical Reinforcement Learning for Humanoid Navigation. At the *Deep Reinforcement Learning Workshop*. 33rd Conference on Neural Information Processing Systems (NeurIPS 2019).

[53] **Haworth, B.**, Usman, M., Berseth, G., Kapadia, M., Faloutsos, P. (2017, August). Static and Dynamic Analysis in Computer-Aided Human-Centric Environment Design. At the *Cognition and Artificial Intelligence for Human-Centred Design Workshop*. International Joint Conferences on Artificial Intelligence (IJCAI 2017).

[54] **Haworth, B.**, Usman, M., Chakraborty, N., Berseth, G., Faloutsos, P., Kapadia, M. (2017, August). Crowd Sourced Co-design of Floor Plans using Simulation Guided Games. At the *Cognition and Artificial Intelligence for Human-Centred Design Workshop*. International Joint Conferences on Artificial Intelligence (IJCAI 2017).

[55] **Haworth, B.**, Usman, M., Berseth, G., Khayatkhoei, M., Kapadia, M., Faloutsos, P. (2016, March). Using synthetic crowds to inform building pillar placements. In *Virtual Humans and Crowds for Immersive Environments (VHCIE 2016)*, (pp. 7-11). IEEE.

[56] Moghaddam, A., **Haworth, B.**, Kearney, E., Baljko, M., Faloutsos, P., Yunusova, Y. (2015, August). Artifact Removal Techniques for 3d Electromagnetic Articulography. At the *3rd International Workshop on Biomechanical and Parametric Modeling of Human Anatomy (PMHA 2015)*. Parametric Human Project.

[57] **Haworth, B.**, Kearney, E., Baljko, M., Faloutsos, P., Yunusova, Y. (2014, August). Electromagnetic articulography in the development of 'serious games' for speech rehabilitation. At the *2nd International Workshop on Biomechanical and Parametric Modeling of Human Anatomy (PMHA 2014)*. Parametric Human Project.

Refereed Posters

[58] **Haworth, B.**, Kapadia, M., Faloutsos, P. (2017, November). Footstep Action Identification and Clustering from Motion Capture. Poster presented at the *10th ACM SIGGRAPH International Conference on Motion in Games (MIG 2017).*

[59] Kearney, E., **Haworth, B.**, Scholl, J., Faloutsos, P., Baljko, M., Yunusova, Y. (2017, November). Game-based Speech Therapy using Visual Feedback in Parkinson's Disease. Poster presented at the *Toronto Rehabilitation Institute Research Day*. UHN: TRI.

[60] Giles, R., Kearney, E., **Haworth, B.**, Faloutsos, P., Baljko, M., Yunusova, Y. (2017, November). Acoustic - Kinematic Relationships in Speech: Improving Assessment and Treatment of Speech Disorder in Parkinson's Disease. Poster presented at the *Toronto Rehabilitation Institute Research Day*. UHN: TRI.

[61] Yunusova, Y., Kearney, E., Scholl, J., Janik-Jones, C., **Haworth, B.**, Roberts, E., Faloutsos, P., Baljko, M. (2017, September). Game-Based Augmented Visual Feedback Treatment for Apraxia of Speech After Stroke. Poster presented at the *11th World Stroke Congress*. CPSR.

[62] Usman, M., **Haworth, B.**, Berseth, G., Kapadia, M., Faloutsos, P. (2017, July). Understanding spatial perception and visual modes in the review of architectural designs. Poster presented at the *16th annual ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2017)*. Eurographics Association.

[63] Kearney, E., Yunusova, Y., **Haworth, B.**, Faloutsos, P., Baljko, M. (2014, February). Articulatory Working Space as a Kinematic Target in Augmented Feedback Applications. Poster presented at the *17th Biennial Motor Speech Conference*.

[64] **Haworth, B.**, Kearney, E., Yunusova, Y., Faloutsos, P., Baljko, M. (2014, February). Rehabilitative Speech Computer Game Calibration Using Empirical Characterizations of Articulatory Working Space (AWS). Poster presented at the *17th Biennial Motor Speech Conference*.

[65] **Haworth, B.**, Yunusova, Y., Kearney, E., Faloutsos, P., Baljko, M. (2013, November). Enabling Serious Games for Speech Rehab: Movement Space Transformation. Poster presented at the *Toronto Rehabilitation Institute Research Day*. UHN: TRI.

[66] Kearney, E., **Haworth, B.**, Faloutsos, P., Baljko, M., Yunusova, Y. (2013, November). Towards Development of Augmented Visual Feedback Targets for Speech Rehabilitation: Articulatory Working Space. Poster presented at the *Toronto Rehabilitation Institute Research Day*. UHN: TRI.

[67] **Haworth, B.**, Baljko, M., Faloutsos, P. (2012, November). Treating phobias with computer games using consumer level hardware and software components. Poster presented at the *5th International Conference on Motion in Games (MIG 2012)*.

Invited Colloquiums

- **Haworth, B.** (2020, May). Representative Crowds for Inclusive Built Environment Design. *University of New Brunswick, Faculty of Computer Science.*
- **Haworth, B.** (2020, March). Representative Crowds for Inclusive Built Environment Design. *University of Victoria, Department of Computer Science.*
- **Haworth, B.** (2019, May). Human Movement Simulation: Environment optimization & diverse crowds for diverse cities. *University of Winnipeg, Department of Applied Computer Science.*

Refereed Presentations

- Johnson, C., **Haworth, B**. (2022, September). Cognitive Model of Agent Exploration with Vision and Signage Understanding. Paper presented at the *21st ACM SIGGRAPH / EUROGRAPHICS Symposium on Computer Animation (SCA 2022).*
- **Haworth, B.**, Kapadia, M., Faloutsos, P. (2021, November). Representative Synthetic Crowds for Inclusive Environment Design. Workshop paper presented at the *2021 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR 2021)*.
- **Haworth, B.** (2021, January). Learning to Move - Reinforcement Learning in Navigation. Invited talk at the *Neuro-Cognitive Modeling of Humans and Environments Workshop. 29th International Joint Conference on Artificial Intelligence and the 17th Pacific Rim International Conference on Artificial Intelligence (IJCAI 2021)*.
- **Haworth, B.***, Berseth, G.*, Moon, S., Faloutsos, P., Kapadia, M. (2020, October). Deep Integration of Physical Humanoid Control and Crowd Navigation. Paper presented at the *13th ACM SIGGRAPH International Conference on Motion, Interaction and Games (MIG 2020)*. ACM.
- Diamant, R.*, **Haworth, B.*** (2019, July). Reading the Shelves: The Politics of Creating a Diverse Comics Library. *The 2nd Annual Conference of the Comics Studies Society – COMICS/POLITICS.*
- Chakraborty, N.*, **Haworth, B.***, Usman, M., Berseth, G., Faloutsos, P., Kapadia, M. (2017, November). Crowd Sourced Co-design of Floor Plans using Simulation Guided Games. Paper presented at the *10th ACM SIGGRAPH International Conference on Motion in Games (MIG 2017)*. ACM.
- **Haworth, B.**, Usman, M., Berseth, G, Kapadia, M. Faloutsos, P. (2017, May). On Density - Flow Relationships During Crowd Evacuation. Paper presented at the *30th Conference on Computer Animation and Social Agents (CASA 2017)*.
- Inampundi, B. C., Zhang, X., Geraci, F., Badler, N. I., Kapadia, M. (2017, May). Memory Reconstruction from Autobiographic Memories of Autonomous Virtual Agents. Paper presented at the *30th Conference on Computer Animation and Social Agents (CASA 2017). (Presenter).*
- **Haworth, B.**, Usman, M., Berseth, G., Khayatkhoei, M., Kapadia, M., Faloutsos, P. (2016, May). CODE: Crowd Optimized Design of Environments. Paper presented at the *29th Conference on Computer Animation and Social Agents (CASA 2016)*.

- Berseth, G., Kapadia, M., Faloutsos, P. (2016, May). ACCLMesh: Curvature-Based Navigation Mesh Generation. Paper presented at the *29th Conference on Computer Animation and Social Agents (CASA 2016)*. *(Presenter).*
- Krontiris, A., Bekris, K. Kapadia, M. (2016, May). ACUMEN: Activity-Centric Crowd Authoring Using Influence Maps. Paper presented at the *29th Conference on Computer Animation and Social Agents (CASA 2016)*. *(Presenter).*
- **Haworth, B.**, Baljko, M., Faloutsos, P. (2012, December). PhoVR: A Virtual Reality System to Treat Phobias. Paper presented at the *11th ACM SIGGRAPH Conference on Virtual Reality Continuum and Its Applications in Industry (VRCAI 2012)*.
- Shtern, M., **Haworth, B.**, Yunusova, Y., Baljko, M., Faloutsos, P. (2012, November). A Game System for Speech Rehabilitation. Paper presented at the *5th International Conference on Motion in Games (MIG 2012)*.

10. TEACHING POSITIONS

- July 2020 – Present: **Course Instructor** in the Department of Computer Science at the University of Victoria, Victoria, Canada
  - Spring 2026: CSC 305 *Introduction to Computer Graphics*
  - Fall 2025: CSC 421 *Introduction to Artificial Intelligence*
  - Fall 2025: CSC 486A/586A *Game Development*
  - Spring 2025: CSC 421 *Introduction to Artificial Intelligence*
  - Spring 2025: CSC 305 *Introduction to Computer Graphics*
  - Fall 2024: CSC 473/573 *Fundamentals of Computer Animation*
  - Spring 2024: CSC 421 *Introduction to Artificial Intelligence*
  - Spring 2024: CSC 473/573 *Fundamentals of Computer Animation*
  - Fall 2023: CSC 305 *Introduction to Computer Graphics*
  - Spring 2023: CSC 473/586D *Fundamentals of Computer Animation*
  - Fall 2022: CSC 578A *Crowd Simulation*
  - Fall 2022: CSC 305 *Introduction to Computer Graphics*
  - Spring 2022: CSC 578A *Crowd Simulation*
  - Fall 2021: CSC 473/586A *Fundamentals of Computer Animation*
  - Spring 2021: CSC 305 *Introduction to Computer Graphics*
  - Fall 2020: CSC 473/586A *Fundamentals of Computer Animation*
- November 2022 – Present: **Consultant/Program Designer/Course Instructor** for Graphics and Gaming Micro-credentials in the Faculty of Engineering and Computer Science, University of Victoria, Victoria, Canada
  - August 2025: *2D Graphics and Rendering for Video Games*
  - June 2025: *3D Graphics and Rendering for Video Games*
  - August 2024: *3D Graphics and Rendering for Video Games*
- August 2023 – Present: **Program Designer/Course Instructor** for Leaders in Engineering Design (LED) Program at Science Venture in the Faculty of Engineering and Computer Science, University of Victoria, Victoria, Canada
  - July 2025: High School Summer Institute, *Video Game Realization*
  - July 2024: High School Summer Institute, *Video Game Realization*
  - August 2023: High School Summer Institute, *Video Game Realization*
- Present: **Guest Lecturer** in the Department of Computer Science at the University of Victoria, Victoria, Canada
  - 07/2023: CSC 305 Introduction to Computer Graphics, *Ray Marching*
  - 11/2021: SENG 310 Human Computer Interaction, *Who Do We Design For? Representing humans in the design processes of spaces we use*
  - 03/2021: CSC 595 Research Skills, *Graphics, Artificial Intelligence, Design, & Games Research + AMA Session*
- 02/2021: **Guest Lecturer** in the Department of Computer Science at Rutgers University, New Jersey, USA
  - Topics in Artificial Intelligence, *Learning Representative Crowds*
- 01/2013 – 04/2017: **Teaching Assistant** in the Department of Electrical Engineering and Computer Science at York University, Toronto, Canada
  - *Object Oriented Programming from Sensors to Actuators*
  - *Professional Practice in Computing*

    - *Introduction to 3D Computer Graphics (x4)*
    - *Advanced Topics in 3D Computer Graphics*
    - *Introduction to Virtual Reality*
    - *Programming Language Fundamentals*
    - *Advanced Object-Oriented Programming*
    - *Software Engineering*
    - *Computers, Information, and Society*
    - *Research Directions in Computing*
    - *Introduction to COSC I*
    - *Introduction to COSC II*
    - *Computer Use: Web and Database Systems*
- 11/2013: **Guest Lecturer** in the Department of Electrical Engineering and Computer Science at York University, Toronto, Canada
    - Introduction to 3D Computer Graphics (x2), *Ray Tracing* and *Illumination Models*

11. SUPERVISION

Doctoral

- Expected 01/2029: Kun Peng, Environmental Studies, co-supervised with Dr. Gerald Singh, at the University of Victoria
- Candidacy Passed 12/2025, Expected 01/2028: Yuduo Jin, Computer Science at the University of Victoria
    - China Scholarship Council (CSC) funding recipient
- Candidacy Passed 02/2024, Expected 09/2026: Vahid Gholamzade, Business & Computer Science Interdisciplinary PhD, co-supervised with Dr. Adel Guitouni, at the University of Victoria
    - University of Victoria INTD PhD Fellowship recipient 2023
    - University of Victoria INTD PhD Fellowship recipient 2022
- Candidacy Passed 08/2023, Expected 09/2025: Qian Wang, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2024 recipient
    - IEEE Pacific Rim Wu-Sheng Lu Graduate Scholarship 2023/2024 recipient
    - British Columbia Graduate Scholarship (BCGS) 2023 recipient
    - University of Victoria Graduate Award 2023 recipient
    - University of Victoria Entrance Fellowship Award 2021 + 2022 recipient

Masters

- Defended 04/2025: Rui Zhang, Thesis-based, Computer Science at the University of Victoria
- Defended 04/2025: Zhixin Fang, Project-based, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2024 recipient
- Defended 12/2024: Kun Peng, Thesis-based, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2023 recipient
- Defended 12/2024: Jonas Buro, Thesis-based, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2022 recipient
- Defended 08/2024: Gabrielle Alves, Thesis-based, Computer Science at the University of Victoria
- Defended 08/2023: Dominic Ferreira, Thesis-based, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2023 recipient
    - University of Victoria Graduate Award 2022 recipient
- Defended 08/2023: Kunal Parikh, Project-based, Computer Science at the University of Victoria
    - University of Victoria Graduate Award 2023 recipient
    - University of Victoria Graduate Award 2022 recipient

Undergraduate

- Sophie Rao, Computer Science at the University of Victoria, Honours Capstone project
    - Project: Affordance Fields in Crowds
- Emma Pederson, Computer Science at the University of Victoria, Honours Capstone project
    - Project: Diverse Footstep Planning
- Nathan Manke, Computer Science at the University of Victoria, Honours Capstone project
    - Project: Adaptive Adversaries in Games
- Luke Kuligowicz, Computer Science at the University of Victoria, Honours Capstone project

    - Project: Human Motion in VR
- Jonah Carol Dullaert, Computer Science at the University of Victoria, Honours Capstone project
    - Project: Adaptive Procedural Generation in Games
- Liam Schatzel, Computer Science at the University of Victoria, Honours Capstone project
    - Project: Language Model Driven Crowds
- Thomas Nguyen, Computer Science + Health Information Science at the University of Victoria, Interdisciplinary Capstone project
    - Project: Language Learning with AI-driven Dual Subtitling in Games
- Geyang Liu, Honours Computer Science at the University of Victoria, Honours Capstone project
    - Project: Enhanced Navigation Meshes
- Saavin Virk, Computer Science + Health Information Science at the University of Victoria, Interdisciplinary Capstone project
    - Project: Motion Capture Datasets
- Natalie Slaba, Computer Science + Fine Arts at the University of Victoria, Interdisciplinary Capstone project
    - Project: Egocentric Agents
- Steven Bobyn, Honours Computer Science at the University of Victoria, Jamie Cassels Undergraduate Research Award 2022-2023 recipient, Honours Capstone project, NSERC Undergraduate Student Research Award (USRA) Summer 2023 recipient
    - Project: Crowd, Environment, Quality Learning
- Connor Hickton, Computer Science + Health Information Science at the University of Victoria, Interdisciplinary Capstone project
    - Project: Assistive Software in Computer Game Interactions
- Brendan Marney, Computer Science + Music at the University of Victoria, Interdisciplinary Capstone project
    - Project: Audio Aware Agents
- Sarah Mackay, Computer Science + Psychology at the University of Victoria, Interdisciplinary Capstone project
    - Project: Perception and Choice in Transit Seating
- Julia Putko, Computer Science + Psychology at the University of Victoria, Interdisciplinary Capstone project
    - Project: Bio-based Agent Learning
- Thomas Richmond, Computer Science + Geography at the University of Victoria, Interdisciplinary Capstone project
    - Project: Geomatics and Navigation in Real Time Simulation
- Liam Shatzel, Honours Computer Science at the University of Victoria, Valerie Kuehne Undergraduate Research Award SU2022 recipient
    - Project: Complex Agent Representations in Crowd Simulation
- Lucas Antonsen, Honours Computer Science at the University of Victoria, Honours Capstone project
    - Project: Abstract Game Playing Benchmarks
- Colin Johnson, Honours Computer Science at the University of Victoria, Jamie Cassels Undergraduate Research Award 2021-2022 recipient, Honours Capstone project
    - Project: Autonomous Evaluation of Signage Visibility for Accessibility Auditing
- Lindsey Bellman, Computer Science + Music at the University of Victoria, Interdisciplinary Capstone project
    - Project: Music Visualization
- Nick Musey, Computer Science + Psychology at the University of Victoria, Interdisciplinary Capstone project
    - Project: Viewpoint of Humanoid Characters in Spatial Perception
- Cairo Sanders, Computer Science + Psychology at the University of Victoria, Interdisciplinary Capstone project
    - Project: Virtual Avatar Representation in Spatial Perception
- Yiping Wang, Honours Computer Science at the University of Victoria, Jamie Cassels Undergraduate Research Award 2020-2021 recipient, W.E. Cowie Innovation Award Recipient, Honours Capstone project, now at University of Waterloo (MMath), Vector Institute Scholarship in Artificial Intelligence recipient
    - Project: Learn by Review: Environment Generalization in Multi-Agent Reinforcement Learning
    - Project: Visual Learning Agents

- Alex Nguyen, Computer Science at the University of Victoria
  - Project: Visual Learning Agents
- Eric Wang, Computer Science + Mathematics at the University of Victoria
  - Project: Visual Learning Agents
- Jonas Buro, Honours Computer Science at the University of Victoria, Honours Capstone project, NSERC Undergraduate Student Research Award (USRA) Summer 2021 recipient
  - Project: Playing the Game of Amazons with Reinforcement Learning
- Rui Zhang, Honours Computer Science at the University of Victoria, Honours Capstone project
  - Project: Synthetic Crowd Evaluation for Biomechanics
- Percy Jia, Honours Computer Science at the University of Victoria, Honours Capstone project
  - Project: Learning Biomechanical Agents
- Jonathan Maluf, Computer Science + Physics at the University of Victoria, Interdisciplinary Capstone project
  - Project: Mesh Deformation for Rectification of Fisheye Images
- Chris Clarke, Computer Science + Music at the University of Victoria, Interdisciplinary Capstone project
  - Project: Developing Tools for Musical Creativity
- Dominic Ferreira, Computer Science + Music at the University of Victoria, Interdisciplinary Capstone project
  - Project: Deep Learning based Solfège Hand Sign Recognition

Academic Supervisory and Examination Committees

- September 2025 – Present: Supervisory **Committee Member**, Reia Mendell Drucker, Department of Computer Science, University of Victoria, MSc Thesis
- 06/2025 – Present: Supervisory **Committee Member**, Jin Han, Department of Computer Science, University of Victoria, MSc Thesis
- 03/2025 – Present: Supervisory **Committee Member**, Mahmoud Chick Zaouali, Department of Electrical and Computer Engineering, University of Victoria, Ph.D. Candidate
- 12/2022 – Present: Supervisory **Committee Member**, Mackenzie Judson, Department of Civil Engineering, University of Victoria, Ph.D. Candidate
- 03/2022 – Present: Supervisory **Committee Member**, Nafiseh Izadyar, Department of Computer Science, University of Victoria, Ph.D. Candidate
- 08/2025: **External Examiner**, Mehran Zoravar, MASc Oral Examination, Department of Mechanical Engineering, University of Victoria
- 03/2025 – 04/2025: Supervisory **Committee Member**, Yijie Wu, Department of Computer Science, University of Victoria, MSc Thesis
- 03/2025: Supervisory Non-Unit **Committee Member**, Yussuf Reza Esmaeili, Department of Mechanical Engineering, University of Victoria, Ph.D.
- 02/2025: **External Examiner**, Pedram Agand, PhD Oral Examination, School of Computing Science, Simon Fraser University
- 08/2024: **Chair**, Jessica (Yijia) Li, MSc Thesis Oral Examination, Department of Psychology, University of Victoria
- 07/2023 – 04/2024: Supervisory **Committee Member**, Todd Charter, Department of Electrical and Computer Engineering, University of Victoria, MASc Thesis
- 04/2024: **External Examiner**, Liam Jowett-Lockwood, MASc Oral Examination, Department of Civil Engineering, University of Victoria
- 06/2023 - 08/2023: Supervisory **Committee Member**, Sanchitha Kuppusami, Department of Computer Science, University of Victoria, MSc Thesis
- 06/2023: **Chair**, Nirav Galani, MSc Non-thesis Oral Examination, Department of Computer Science, University of Victoria,
- 08/2022: **Chair**, Suyin Pan, MSc Non-thesis Oral Examination, Department of Computer Science, University of Victoria
- 11/2021: **External Examiner**, Jordie Shier, MSc Oral Examination, Interdisciplinary Studies, University of Victoria
- 12/2020: **External Examiner**, Vahid Azizi, PhD Oral Examination, Department of Computer Science, Rutgers University

12. STUDENT MENTORING & ADVISING *(In collaboration with official supervisors)*

Doctoral

- Muhammad Usman, Electrical Engineering and Computer Science at York University
  - Thesis: Spatial Analytics for Simulated User Behaviors in Virtual Environments
- Kaidong Hu, Computer Science at Rutgers University
  - Project: Multi-agent Deep Reinforcement Learning
- Seonghyeon Moon, Computer Science at Rutgers University
  - Project: Hierarchical Deep Reinforcement Learning for Humanoid Agents

Masters

- Peter Caruana, Electrical Engineering and Computer Science at York University.
  - Thesis: Pseudo-Saliency for Human Gaze Simulation
- Yunao Shen, Shengdon Liu, Ruolin Qu, Computer Science at Rutgers University
  - Thesis: Multi-Modal Curriculum in Multi-Agent Reinforcement Learning
- Melissa Kremer, Electrical Engineering and Computer Science at York University
  - Thesis: Distracted Agent Modelling in Synthetic Crowds
- Muhammad Usman, Electrical Engineering and Computer Science at York University
  - Thesis: Towards Static and Dynamic Analysis of Architectural Elements

Undergraduate

- Jeffrey Yang, Computer Science at Rutgers University
  - Project: Vehicular Traffic Simulation in Urban Environments
- Yunao Shen, Shengdon Liu, Ruolin Qu, Computer Science at Rutgers University, CS523 Computer Graphics
  - Project: Competitive Multi-agent Inverse Reinforcement Learning
- Hemanth Chiluka, Computer Science at Rutgers University, CS523 Computer Graphics
  - Project: Robust Multi-Agent Footstep Planning
- Duc Ngo, Computer Science at Rutgers University, Grossman Interdisciplinary Research Team (GIRT) Fellowship Capstone Project
  - Project: Heterogeneous Simulation Platform for Pedestrian/Vehicular Interfaces
- Martin Leung, Engineering Science at the University of Toronto, now at AMD, previously Ubisoft Toronto
  - Thesis: Gamifying Speech Therapy for Stroke Victims

13. PROFESSIONAL SERVICE

Editorial

- June 2024 – Present: **Editor-in-chief** of the Canadian Human-Computer Communications Society (CHCCS) / Société canadienne du dialogue humain-machine (SCDHM)
- 02/2020 – Present: **Associate Editor** of Computer Animation and Virtual Worlds Journal

Academic Faculty & Department Committees

- August 2024 – Present: **Member**, Game Programs Committee, Department of Computer Science, University of Victoria
- 08/2024 – Present: **Member**, Space Committee, Department of Computer Science, University of Victoria
- 08/ 2024 – Present: **Member**, Outreach Committee, Department of Computer Science, University of Victoria
- 11/2023 – Present (x4): **Member,** Area Hiring Committee, Graphics & HCI, Department of Computer Science, University of Victoria
- 01/2023 – Present: Honours **Advisor**, Department of Computer Science, University of Victoria
- 05/2023 – 12/2023: **Member** (Research Co-lead) Hiring Committee, SSHRC Tier 2 Canada Research Chair (CRC) in Emergent Digital Arts Practices, Department of Visual Arts, University of Victoria
- 11/2021 – 11/2022: **Member**, Strategic Plan Working Group, Department of Computer Science, University of Victoria
- 02/2022 – 06/2022: **Member** Sub-Area Hiring Committee, Fairness, Ethics, Accountability, Transparency, Interpretability, Theory of data privacy, Department of Computer Science, University of Victoria
- 03/2021 – 06/2021: **Chair** Sub-Area Hiring Committee, Fairness/Social Aspects/Equity in Artificial Intelligence, Department of Computer Science, University of Victoria
- 10/2018 – 04/2019: **Graduate Student Representative**, NSERC Create Program in Data Analytics and Visualization, York University
- 2019: **Graduate Student Representative**, York University Faculty of Graduate Studies Committee on Broadening the Dissertation

Promotion Evaluations

- January 2026 – April 2026: **Evaluator**, Teaching evaluation, Department of Computer Science, University of Victoria
- 05/2025 – 11/2025 (x2): ARPT **Committee Member**, Tenure Cases, Department of Computer Science, University of Victoria
- 05/2022 – 09/2022: **Evaluator**, Teaching evaluation, Department of Computer Science, University of Victoria

Academic Program Reviews

- October 2025: **Chair**, Internal Institutional Program Review, BC Undergraduate Program
- 05/2025 – 06/2025: **Expert Reviewer**, Degree Quality Assessment Board, BC Graduate Program

Industrial/Academic Research Proposal Reviews

- January 2026: **External Reviewer**, NSERC Discovery Grants
- 08/2025: **Reviewer**, CFI John R. Evans Leaders Fund (JELF)
- 02/2025: **Reviewer**, Mitacs Accelerate Proposal
- 01/2025: **External Reviewer**, NSERC Discovery Grants
- 08/2024: **Reviewer**, Mitacs Accelerate Proposal
- 06/2024 (x4): **Internal Reviewer**, University of Victoria, Aspiration and Banting Postdoctoral Fellowships
- 01/2024: **External Reviewer**, NSERC Discovery Grants
- 09/2023: **Reviewer**, Mitacs Accelerate Proposal
- 12/2022: **External Reviewer**, NSERC Discovery Grants
- 07/2022: **Review Committee Member**, CFI College Fund Proposal
- 10/2021: **Internal Reviewer**, Department of Computer Science, University of Victoria, NSERC Discovery Grant Proposal
- 07/2021: **Reviewer**, Mitacs Accelerate Proposal

Industrial/Academic Awards Reviews

- January 2024: Governor General Silver Medal Award **Adjudicator** (Internal CS Department)
- 10/2021: **Reviewer**, NSERC Arthur B. McDonald Fellowship

Conference Organizing/Executive Committees

- October 2023 – June 2024: **Technical Program Chair** Graphics, Graphics Interface 2024 (GI 2024)
- 08/2023 – 06/2024: Artificial Intelligence and Machine Learning in Simulation **Conference Track Co-Chair**, Annual Modeling and Simulation Conference 2024 (ANNSIM 2024)
- 06/2022 – 06/2023: **Workshops, Courses, Posters, and Demos Co-Chair**, Graphics Interface 2023 (GI 2023)

Conference Session Chair

- May 2025: Graphics Interface 2025 (GI 2025), Graphics & Rendering session
- 09/2022: ACM Symposium on Applied Perception 2022 (SAP 2022), Hands and Interaction session
- 10/2021: 16th International Symposium on Visual Computing (ISVC 2021), Pattern Recognition session
- 04/2021: 12th annual Symposium on Simulation for Architecture and Urban Design (SimAUD 2021), Collaborative Design session

Conference Program/Scientific Committees

- 2026 (x4): 25th annual ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2026)
- 2026 (x8): 52nd Annual Graphics Interface (GI 2026)
- 2026 (x2): International Conference on Computer Animation, Social Agents, and Extended Reality (CASAXR 2026)
- 2025 (x3): 18th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG 2025)
- 2025 (x3): 24th annual ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2025)
- 2025: 20th International Symposium on Visual Computing (ISVC 2025)
- 2025 (x3): 38th International Conference on Computer Animation and Social Agents (CASA 2025)
- 2025 (x3): Annual Modeling and Simulation Conference (ANNSIM 2025)
  - Simulation for Architecture and Urban Design (SimAUD 2025) track
  - Artificial Intelligence and Machine Learning in Simulation track
- 2024 (x3): 17th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG 2024)
- 2024 (x2): 19th International Symposium on Visual Computing (ISVC 2024)

- 2023 (x4): The 38th Annual AAAI Conference on Artificial Intelligence (AAAI-24), Demonstrations Track
- 2023 (x3): 16th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG 2023)
- 2023 (x1): 18th International Symposium on Visual Computing (ISVC 2023)
- 2023 (x2): 36th International Conference on Computer Animation and Social Agents (CASA 2023)
- 2023 (x4): 22nd International Conference on Autonomous Agents and Multi-Agent Systems 2023 (AAMAS 2023), Demo Track
- 2023 (x3): Annual Modeling and Simulation Conference (ANNSIM 2023), 14th annual Symposium on Simulation for Architecture and Urban Design (SimAUD 2023) track
    - Received the Outstanding Reviewer recognition for ANNSIM'23 PC Service (1 of 4, out of 235 reviewers) from the Society for Modeling and Simulation International (SCS)
- 2023 (x2): 49th Annual Graphics Interface (GI 2023)
- 2023 (x5): 20th biannual Computer Aided Architectural Design Futures 2023 (CAAD Futures 2023)
- 2022 (x2): 15th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG 2022)
- 2022 (x2): 13th annual Symposium on Simulation for Architecture and Urban Design (SimAUD 2022)
- 2022 (x1): 17th International Symposium on Visual Computing (ISVC 2022)
- 2022 (x4): 21st International Conference on Autonomous Agents and Multi-Agent Systems 2022 (AAMAS 2022), Demo Track
- 2021 (x3): 14th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG 2021)
- 2021 (x2): 16th International Symposium on Visual Computing (ISVC 2021)
- 2021 (x2): 19th biannual Computer Aided Architectural Design Futures 2021 (CAAD Futures 2021)
- 2021 (x4): 12th annual Symposium on Simulation for Architecture and Urban Design (SimAUD 2021)
- 2021 (x2): 29th International Joint Conference on Artificial Intelligence, Workshop on Neural Cognitive Modeling of Humans and Environments (IJCAI 2021)
- 2020 (x2): 13th annual ACM SIGGRAPH conference on Motion, Interaction, and Games 2020 (MIG 2020)
- 2020 (x2): 15th International Symposium on Visual Computing (ISVC 2020)
- 2019 (x5): 12th annual ACM SIGGRAPH conference on Motion, Interaction, and Games 2019 (MIG 2019)
- 2019 (x2): 14th International Symposium on Visual Computing (ISVC 2019)
- 2018 (x3): 11th annual ACM SIGGRAPH conference on Motion, Interaction, and Games 2018 (MIG 2018)

Invited Peer Reviews

Journals

- 2026 – Present (x1): Computer Applications in Engineering Education
- 2024 – Present (x2): Developments in the Built Environment
- 2021 – Present (x6): IEEE Transactions on Visualization and Computer Graphics (TVCG)
- 2021 – Present (x5): IEEE Transactions on Games
- 2020 – Present (x1): Engineering Applications of Artificial Intelligence
- 2020 – Present (x1): Journal of Computational Science
- 2018 – Present (x8): Computers & Graphics Journal (CAG)
- 2018 – Present (x2): Simulation & Gaming (SAG)
- 2016 – Present (x4): Computer Graphics Forum (CGF)
- 2015 – Present (x9): Computer Animation & Virtual Worlds Journal (CAVW)
- 2013 – Present (x21): The Visual Computer Journal (TVCJ)

Conferences (*separate from PC membership above*)

- 2026 (x1): SIGGRAPH 2026
- 2025 (x1): SIGGRAPH Asia 2025
- 2023 (x1): SIGGRAPH Asia 2023
- 2021 (x1): Eurographics 2022
- 2021 (x2): ACM CHI Conference on Human Factors in Computing Systems (CHI 2022)
- 2020 (x1): 34th AAAI Conference on Artificial Intelligence (AAAI 2021)
- 2019 (x2): ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2019)
- 2019 (x1): 32nd Conference on Computer Animation and Social Agents (CASA 2019)
- 2019 (x1): Eurographics 2019
- 2019 (x1): IEEE VR 2019
- 2018 (x2): SIGGRAPH Asia 2018
- 2018 (x1): ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2018)
- 2018 (x1): SIGGRAPH 2018
- 2018 (x1): 31st Conference on Computer Animation and Social Agents (CASA 2018)
- 2018 (x1): Eurographics (EG 2018)

- 2017 (x2): SIGGRAPH Asia 2017
- 2017 (x1): ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2017)
- 2017 (x2): 30th Conference on Computer Animation and Social Agents (CASA 2017)
- 2017 (x2): SIGGRAPH 2017
- 2017 (x2): IEEE International Conference on Robotics and Automation (ICRA 2017)
- 2017 (x1): ACM CHI Conference on Human Factors in Computing Systems (CHI 2017)
- 2016 (x1): 24th Pacific Conference on Computer Graphics and Applications (Pacific Graphics 2016)
- 2016 (x1): SIGGRAPH Asia 2016
- 2016 (x2): SIGGRAPH 2016
- 2016 (x2): ACM CHI Conference on Human Factors in Computing Systems – Late Breaking Works (CHI 2016)
- 2015 (x1): 8th International ACM SIGGRAPH Conference on Motion in Games (MIG 2015)
- 2015 (x1): ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2015)
- 2014 (x1): 14th International Conference on Intelligent Virtual Agents (IVA 2014)
- 2014 (x1): 7th International ACM SIGGRAPH Conference on Motion in Games (MIG 2014)

14. VOLUNTEER POSITIONS

- September 2024 – Present: **Advisory Panel Member** with First in Class: First Generation Student Mentorship Program (*group is currently on hiatus*), University of Victoria, Victoria, Canada
- 10/2022 – Present: **Mentor** with First in Class: First Generation Student Mentorship Program (*group is currently on hiatus*), University of Victoria, Victoria, Canada
- 10/2021 – Present: **Faculty Sponsor/Liaison** UVic Game Dev Club, University of Victoria, Victoria, Canada
- 04/2018 – Present: **Board Member & Officer** (Director of Technical Development & Acting Secretary) at The Canada Comics Open Library in Toronto, Canada
- 03/2018 – Present: **Technical Consultant & Developer** at the Toronto Zine Library in Toronto, Canada
- 02/2019: **Mentor** at ElleHacks 2019 in Lassonde School of Engineering at York University
- 05/2018: **Volunteer** at AI·GI·CRV 2018
- 02/2018: **Mentor** at ElleHacks 2018 in Lassonde School of Engineering at York University
- 02/2014 – 09/2016: **Executive Member** of the Devices 4 Disabilities student club at York University
    - 09/2014 – 09/2016: **President**
    - 02/2014 – 08/2014: **Vice President**
- 06/2016 – 08/2016: Data science **Collaborator** on geolocation analysis with the Toronto Tool Library at The Sharing Depot
- 08/2010 – 08/2012: Astronomy and Cosmology **Tutor** for NATS-AID, a student-run organization in the Faculty of Science, Natural Science Division at York University

15. WORKSHOPS, PANELS, AND PUBLIC ENGAGEMENT

- “SPARK ANIMATION 2025”, Co-Host of SparkCG Animation Screening, 2025
- “CSC/SENG Recruiting Event”, Computer Science Lab Lectures, University of Victoria, 2025
- “SPARK ANIMATION 2024”, Co-Host of SparkCG Animation Talk & Screening, 2024
- “Explore UVic”, Computer Science Lab Tours, University of Victoria, 2024
- “Beyond Data: AI-Enabled Human Modelling for Informed Decision-Making”, BC Ministry of Attorney General, Justice Services Branch HQ Conference, 2024
- “Designing the AI City: Simulation and Human-Centred Urban Design”, Distinguished speaker in the City Talks Artificial Intelligence and the Future of Cities series, 2023
- “Ethical Concerns of AI Research”, All Points West with Jason D’Souza, CBC Radio, 2023
- “CSC Lab Crawl”, Department of Computer Science, University of Victoria, 2022
- “Health and Technology” Panel, Institute on Aging and Lifelong Health – Pathways to Lifelong Health, University of Victoria, 2021
- “Mission, Strategy, & Politics of Starting a Library” Panel, Information & Museum Studies Conference 2019 – Community Knowledge: Shared Practices of Sense-Making, Communication, & Collaboration, University of Toronto, 2019
- “Graphics and Media at York (GaMaY) Lab – Animation and Virtual Reality”, Women in Science and Engineering (WISE) Initiative – Science Funday, York University, 2018
- “Visualize Fast, Visualize Often: Important Insights from Small Changes in Perspective”, NSERC CreateDAV – Summer School, York University, 2018

- “Toronto Zine Library”, Maker Festival Toronto 2018
- “Footstep Action Identification and Clustering from Motion Capture”, NSERC CreateDAV – Data Analytics & Visualization Bootcamp, York University, 2017
- “Graphics and Media at York (GaMaY) Lab”, NSERC CreateDAV – Lab Tours, York University, 2016
- “Building the TalkBox Do-It-Yourself speech generating device”, Reclaiming Our Bodies and Minds (ROBAM), Ryerson University, 2016
- “Vocal Tract Visualization (VTV) Project: Centre for Innovation in Information Visualization and Data Driven Design (CIVDDD)”, Ontario Centres of Excellence (OCE): Discovery 2015
- “TalkBox Project: Tetra Society of North America”, Ontario Centres of Excellence (OCE): Accessibility Innovation Showcase 2015
- “Devices 4 Disabilities (D4D) @ YorkU”, Maker Festival Toronto 2015
- “MakeTalk Workshop”, Toronto Mini Maker Faire 2014