Curriculum Vitae Garreth W. Tigwell

School of Information

B. Thomas Golisano College of Computing and Information Sciences Rochester Institute of Technology

Contact Information

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Education

PhD in Human-computer Interaction

University of Dundee, March 2015 - May 2019

Thesis Title: *Improving Content Design on Mobile Devices to Reduce Situational Visual Impairments* Supervised by Dr. David Flatla and Dr. Rachel Menzies

MSc in User Experience Engineering

*University of Dundee, September 2013 – September 2014*Awarded Distinction

Thesis Title: *Choosing Accessible Web Colours for Web Developers and Designers* Supervised by Dr. David Flatla

BSc with Honours in Psychology

University of Dundee, September 2008 – June 2012 Awarded Upper Second-Class (2:1)

Thesis Title: Belief-desire reasoning: A further comparison between bilingual and monolingual speakers

Supervised by Dr. Alissa Melinger

Academic Employment

- a. August 2019 to Present. Assistant Professor in the School of Information, Rochester Institute of Technology.
- b. May 2019 to July 2019. Postdoctoral researcher (short term contract) in the Discipline of Computing, School of Science and Engineering, University of Dundee.

Grants and Funding

- a. May 2020 May 2021. PI, \$4,991.00, RIT GWBC20 seed funding "Security and Privacy Concerns with Situationally-induced Impairments and Disabilities" project.
- b. June 2019 December 2019. Co-PI, £4,002, Bournemouth University Acorn Fund for "Accessible Emoji" project.
- c. March 2015 September 2018. £70,000, Engineering and Physical Sciences Research Council (EPSRC) PhD Studentship covering 3.5 years. EP/M506497/1
- d. 2013-2014 Carnegie-Cameron Taught Postgraduate Bursaries £3,600.

Scholarship

Journal papers (Peer Reviewed)

a. **Garreth W. Tigwell**, David R. Flatla, and Neil D. Archibald. 2017. ACE: A Colour Palette Design Tool for Balancing Aesthetics and Accessibility. *ACM Trans. Access. Comput.* 9, 2, Article 5 (January 2017), 32 pages. DOI: https://doi.org/10.1145/3014588

Conference papers (Peer Reviewed)

a. **Garreth W. Tigwell** and Michael Crabb. 2020. Household Surface Interactions: Understanding User Input Preferences and Perceived Home Experiences. In *Proceedings of*

- the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20). Association for Computing Machinery, New York, NY, USA, 1–14. DOI: https://doi.org/10.1145/3313831.3376856 [Acceptance rate: ~25%]
- b. **Garreth W. Tigwell**, Benjamin M. Gorman, and Rachel Menzies. 2020. Emoji Accessibility for Visually Impaired People. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20*). Association for Computing Machinery, New York, NY, USA, 1–14. DOI: https://doi.org/10.1145/3313831.3376267 [Acceptance rate: ~25%]
- c. **Garreth W. Tigwell**, David R. Flatla, and Rachel Menzies. 2018. It's not just the light: understanding the factors causing situational visual impairments during mobile interaction. In *Proceedings of the 10th Nordic Conference on Human-Computer Interaction (NordiCHI '18)*. Association for Computing Machinery, New York, NY, USA, 338–351. DOI:https://doi.org/10.1145/3240167.3240207 [Acceptance rate: 24%]
- d. **Garreth W. Tigwell**, Rachel Menzies, and David R. Flatla. 2018. Designing for Situational Visual Impairments: Supporting Early-Career Designers of Mobile Content. In *Proceedings of the 2018 Designing Interactive Systems Conference (DIS '18)*. Association for Computing Machinery, New York, NY, USA, 387–399. DOI: https://doi.org/10.1145/3196709.3196760 [Acceptance rate: 22%]
- e. Katerina Gorkovenko, **Garreth W. Tigwell**, Christopher S. Norrie, Miriam Waite, Daniel Herron. 2017. ShopComm: Community-Supported Online Shopping for Older Adults. In *Proceedings of Association for the Advancement of Assistive Technology in Europe (AAATE '17)*. Sheffield, UK. DOI:http://doi.org/10.3233/978-1-61499-798-6-175

Experience Reports (Peer Reviewed)

a. **Garreth W. Tigwell**, Roshan L. Peiris, Stacey Watson, Gerald M. Garavuso, and Heather Miller. 2020. Student and Teacher Perspectives of Learning ASL in an Online Setting. In *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)*, October 26–28, 2020, Virtual Event, Greece. ACM, New York, NY, USA, 6 pages. https://doi.org/10.1145/3373625.3417298 [Acceptance rate: 57%]

Poster papers (Peer Reviewed/Juried)

- a. Sarah Andrew, Stacey Watson, Tae Oh, and **Garreth W. Tigwell**. 2020. A Review of Literature on Accessibility and Authentication Techniques. In *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)*, October 26–28, 2020, Virtual Event, Greece. ACM, New York, NY, USA, 4 pages. https://doi.org/10.1145/3373625.3418005 [Acceptance rate: 61.5%]
- b. Rachel Menzies, Benjamin M. Gorman, and **Garreth W. Tigwell**. 2020. Reflections on Using Chat-Based Platforms for Online Interviews with Screen-Reader Users. In *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20)*, October 26–28, 2020, Virtual Event, Greece. ACM, New York, NY, USA, 4 pages. https://doi.org/10.1145/3373625.3418000 [Acceptance rate: 61.5%]
- c. Rachel Menzies, **Garreth W. Tigwell**, Mandar Tamhane, and Annalu Waller. 2019. Weaving Accessibility Through an Undergraduate Degree. In *The 21st International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '19)*. Association for Computing Machinery, New York, NY, USA, 526–529. DOI:https://doi.org/10.1145/3308561.3354611 [Acceptance rate: 59%]
- d. Kerr Macpherson, **Garreth W. Tigwell**, Rachel Menzies, and David R. Flatla. 2018. BrightLights: Gamifying Data Capture for Situational Visual Impairments. In *Proceedings of the 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '18)*. Association for Computing Machinery, New York, NY, USA, 355–357. DOI: https://doi.org/10.1145/3234695.3241030 [Acceptance rate: 58%]
- e. **Garreth W. Tigwell** and David R. Flatla. 2016. Oh that's what you meant! reducing emoji misunderstanding. In *Proceedings of the 18th International Conference on Human-Computer Interaction with Mobile Devices and Services Adjunct (MobileHCI '16)*. Association for Computing Machinery, New York, NY, USA, 859–866. DOI:https://doi.org/10.1145/2957265.2961844

Workshop papers and proposals (Peer-reviewed/Juried)

- a. Cole Gleason, Patrick Carrington, Lydia B. Chilton, Benjamin M. Gorman, Hernisa Kacorri, Andrés Monroy-Hernández, Meredith Ringel Morris, Garreth W. Tigwell, and Shaomei Wu. 2019. Addressing the Accessibility of Social Media. In Conference Companion Publication of the 2019 on Computer Supported Cooperative Work and Social Computing (CSCW '19). Association for Computing Machinery, New York, NY, USA, 474–479. DOI:https://doi.org/10.1145/3311957.3359439
- b. **Garreth W. Tigwell**, Zhanna Sarsenbayeva, Benjamin M. Gorman, David R. Flatla, Jorge Goncalves, Yeliz Yesilada, Jacob O. Wobbrock (2019). Addressing the Challenges of Situationally-Induced Impairments and Disabilities in Mobile Interaction. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (CHI EA '19*). Association for Computing Machinery, New York, NY, USA, Paper W30, 1–8. DOI: https://doi.org/10.1145/3290607.3299029 [Acceptance rate: 31%]
- c. Michael Crabb, Rachel Menzies, **Garreth W. Tigwell**, Daniel Clarke, Christopher Lim, and Cara Henderson (2019) Take a GANDER. Gathering Accessibility Needs by Doing Explorative Research. *The Design Journal*, 22:sup1, 2303-2306, DOI:https://doi.org/10.1080/14606925.2019.1595040
- d. Michael Mauderer, **Garreth W. Tigwell**, Benjamin M. Gorman, and David R. Flatla (2017). Beyond accessibility: Lifting perceptual limitations for everyone. Accepted for workshop on "Amplification and Augmentation of Human Perception" at the *ACM CHI Conference on Human Factors in Computing Systems (CHI'17)*. http://arxiv.org/abs/1709.08957

Magazine and Newsletter Articles

- a. Garreth W. Tigwell, Zhanna Sarsenbayeva, Benjamin M. Gorman, David R. Flatla, Jorge Goncalves, Yeliz Yesilada, Jacob O. Wobbrock (2020). Future Directions for Situationally Induced Impairments and Disabilities Research. *Interaction*. Association for Computing Machinery.
- b. Cole Gleason, Patrick Carrington, Lydia B. Chilton, Benjamin M. Gorman, Hernisa Kacorri, Andrés Monroy-Hernández, Meredith Ringel Morris, **Garreth W. Tigwell**, and Shaomei Wu. 2020. Future research directions for accessible social media. SIGACCESS Access. Comput., 127, Article 3 (June 2020), 12 pages. DOI:https://doi.org/10.1145/3412836.3412839

Invited Talks

- a. **Garreth W. Tigwell**, "Improving Accessibility and Usability Through Design". Guest Lecture Talk for the undergraduate Introduction to HCI course at the University of Rochester, 18th of November, 2020.
- b. **Garreth W. Tigwell**, "Supporting People Through Research". Seminar Talk at Bournemouth University, 5th of April, 2019.
- c. **Garreth W. Tigwell**, PhD Mentor Talk. SICSA HCI Doctoral Consortium held at Robert Gordon University, 27th of June, 2018.

Research Presentations

- a. 2020 The ACM International Conference on Interactive Surfaces and Spaces (ISS), 8th 11th November, 2020. Invited CHI talk. Virtual presentation due to COVID-19.
- b. 2020 The 22^{nd} International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 26^{th} 28^{th} of October, 2020. Virtual presentation due to COVID-19.
- c. 2020 SICSA PreCHI day, 12^{th} of May, 2020. Virtual presentation due to COVID-19.
- d. 2020 The ACM CHI Conference on Human Factors in Computing Systems (CHI). Virtual presentation due to COVID-19.
- e. 2019 The 21st International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 28th 30th of October, 2019.
- f. 2018 The 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 22nd 24th of October, 2018.

- g. 2018 The 10th Nordic Conference on Human-Computer Interaction (NordiCHI), 1st 3rd of October, 2018.
- h. 2018 SICSA PhD Conference held at Robert Gordon University, 28th 29th of June, 2018.
- 2018 The ACM SIGCHI Conference on Designing Interactive Systems (DIS), 9th 13th of June, 2018.
- j. 2018 Annual Computing PhD Symposium, University of Dundee (30 minutes).
- k. 2017– The 19th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 30th October 1st November, 2017.
- l. 2017 SICSA PhD Conference held at the University of Dundee, 27th 28th of June, 2017.
- m. 2017 Annual Computing PhD Symposium, University of Dundee (30 minutes).
- n. 2016 The 18th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI), 6th 9th of September, 2016.
- o. 2016 Annual Computing PhD Symposium, University of Dundee (30 minutes).
- p. 2015 SICSA PhD Conference held at the University of Glasgow, 24th 25th of June, 2015.
- q. 2015 Annual Computing PhD Symposium, University of Dundee (30 minutes).
- r. 2012 BPS Scottish Undergraduate Dissertation Conference held at the University of Glasgow, 17th of March, 2012.

Organised Workshops and Activites

- a. 2020 Teaching Accessibility in Computing Workshop. Michael Crabb, Rachel Menzies, Benjamin M. Gorman, & **Garreth W. Tigwell**.
 - i. A SICSA Workshop to explore the state of accessibility teaching in Scotland through discussion of our collective experiences. Held virtually on 7th of October, 2020.
- b. 2019 Addressing the Accessibility of Social Media. Cole Gleason, Patrick Carrington, Lydia B. Chilton, Benjamin M. Gorman, Hernisa Kacorri, Andrés Monroy-Hernández, Meredith Ringel Morris, Garreth W. Tigwell, and Shaomei Wu.
 - i. A workshop at the 22nd ACM Conference on Computer-Supported Cooperative Work and Social Computing 2019. The workshop will forge collaborations between researchers and practitioners, and define high-priority accessibility challenges for social media platforms.
- 2019 Addressing the Challenges of Situationally-Induced Impairments and Disabilities in Mobile Interaction. Garreth W. Tigwell, Zhanna Sarsenbayeva, Benjamin M. Gorman, David R. Flatla, Jorge Goncalves, Yeliz Yesilada, and Jacob O. Wobbrock.
 - A workshop at the ACM CHI Conference on Human Factors in Computing Systems 2019. The workshop will bring together researchers working on understanding, sensing, modelling, and adapting technologies to ameliorate the effects of SIIDs. Acceptance rate: 31%.
- d. 2019 Take a GANDER. Gathering Accessibility Needs by Doing Explorative Research. Michael Crabb, Rachel Menzies, **Garreth W. Tigwell**, Daniel Clarke, Christopher Lim, and Cara Henderson.
 - i. A peer-reviewed proposal for a research activity into nature or the built environment to have an open-air discussion around a topic of interest that will take place at the 13th International Conference of the European Academy of Design, 'Running with Scissors', 10th – 12th of April, 2019.
- e. 2017 Academic Writing with LaTeX. **Garreth W. Tigwell**, Nadia Taou, Sasa Radomirovic, Benjamin M. Gorman, Keith Edwards, David R. Flatla, and Alison Pease.
 - i. A workshop to introduce PhD students to the process of writing a document in LaTeX. SICSA PhD Conference held at the University of Dundee, 27th – 28th of June, 2017.

Doctoral Consortium

- a. 2016 SICSA HCI Doctoral Consortium at the University of Strathclyde, 29th of June, 2016.
- b. 2015 SICSA HCI Doctoral Consortium at the University of Dundee, 24th of August, 2015.

Courses Taught

- a. Instructor, School of Information, RIT
 - i. HCIN-610 Foundations of Human Computer Interaction, Fall 2020
 - ii. HCIN-700 Current Topics in HCI, Spring 2020
 - iii. HCIN-610 Foundations of Human Computer Interaction, Fall 2019
- b. Guest Lecture, School of Information, RIT
 - i. HCIN-794 MS Human Computer Interaction Capstone Proposal, Fall 2019
 - ii. HCIN-600 Research Methods, Fall 2019
- c. Various roles, University of Dundee
 - i. 2015-2019. HCI, Programming, Research, UX, and Web courses.

Advising

PhD Dissertations

- a. PhD Student Advisees
 - i. Laleh Nourian, Computing & Information Sciences, RIT. Starting 2021.
- b. Dissertation Committee
 - i. Sovantharith Seng, Computing & Information Sciences, RIT. 2020 to present.
- c. Pre-Assessment Committee Member
 - i. Abraham Glasser, Computing & Information Sciences, RIT. 2019 to 2020.
 - ii. Saad Hassan, Computing & Information Sciences, RIT. 2019 to 2020.

M.S. Capstones/Theses

- a. Advisor
 - i. Sarah Andrew, Human Computer Interaction M.S. student, RIT. Capstone:
 Designing for Mobile Authentication Situational Impairments caused by COVID 19 Preventions. 2020 to Present. Propoal accepted.
 - Ma' kiah Holliday, Human Computer Interaction M.S. student, RIT. Capstone:
 Providing College Students Safe Access to On-Campus Food Pantry Post COVID-19. 2020 to Present. Proposal accepted.
 - iii. Urvashi Kokate, Human Computer Interaction M.S. student, RIT. Capstone: Evaluating the Accessibility Check Features in Popular Prototyping tools. 2020 to Present. Proposal accepted.
 - iv. Athira Pillai, Human Computer Interaction M.S. student, RIT. Capstone:
 Withstanding an Increasingly Inaccessible Web: Incorporating Accessibility into
 Website Builders, 2020 to Present, Proposal accepted.
 - v. Esha Shandilya, Human Computer Interaction M.S. student, RIT. Capstone: Role of Non-textual Communication in Developing Interpersonal Bonds in Virtual Workspaces. 2020 to Present. Proposal accepted.
 - vi. Ralph Thelusma, Human Computer Interaction M.S. student, RIT. Capstone: Factors contributing to poor alphanumeric password authentication practices among military members on overseas assignments stationed in Vilseck, Germany. 2020 to Present. Proposal accepted.
 - vii. Xinyue Zhang, Human Computer Interaction M.S. student, RIT. Capstone: *An Educational System for Exploring and Understanding Situational Visual Impairments*. 2019 to 2020. Defended: August 2020.
 - viii. Alexandra Hannaway, Human Computer Interaction M.S. student, RIT.

 Developing a Context Driven Messaging Aids with User-Centered Design to Improve
 Online Dating Conversations. 2020 to 2020. Defended: July 2020.
 - ix. Hui-yu Ho, Human Computer Interaction M.S. student, RIT. Capstone: *ACE 2.0:*Digital Design Tool to Help Designers Increase Visual Accessibility. 2019 to 2020.
 Defended: July 2020.
 - x. Liam Kiniry, Human Computer Interaction M.S. student, RIT. Capstone: *Alt-Text Supplemented by Social Media Crowdsourcing: Closing Gaps in Social and Contextual Understanding of Memes*. 2019 to 2020. Defended: April 2020.
 - xi. Trinh Le, Human Computer Interaction M.S. student, RIT. Capstone: *Desired Features and Capabilities of Assistive Mobile Technology for Self-Regulating*

b. Committee Member

- i. Becca Dingman, Human Computer Interaction M.S. student, RIT. Capstone: Creating Accessible Podcasts: A platform for transcribing podcasts. 2020 to Present. Proposal accepted.
- ii. Manisha Varma Kamarushi, Human Computer Interaction M.S. student, RIT. Capstone: Haptic Authentication: One-touch Authentication for Blind/low vision users to mitigate Shoulder-Surfing Attacks. 2020 to Present. Proposal accepted.
- iii. Wenhao Luebs, Human Computer Interaction M.S. student, RIT. Capstone: *Making Sketching Activity Accessible to Blind and Low-Vision People in User Experience Design*. 2019 to 2020. Defended: November 2020.
- iv. Junchen Li, Human Computer Interaction M.S. student, RIT. Capstone: *Using Prototyping Tools via Screen Reader Software: Usability and Accessibility Issues.* 2019 to 2020. Defended: April 2020.

M.S. Independent Study

a. Advisor

i. Bryan Basham. *Improving the Student User Experience of an Experimental Learning Management System*. School of Individualized Study, RIT. May 2020 – December 2020.

Research Assistantship

a. Advisor

 Shantanu Jamble. Game Design and Development M.S. student, RIT. Mobile Games for Understanding the Effects of Ambient Lighting, Display Brightness, and Design on Task Performance. March 2020 – April 2020.

Graduate Assistantship

b. Advisor

i. Sarah Andrew. Human Computer Interaction M.S. student, RIT. *Inclusive Privacy and Security*. Fall 2020 – Present.

Advising Roles at the University of Dundee

From 2014-2018 I co-advised 2x final year undergraduate students, 1x graduate student, and 3x high school students on a Nuffield Research Placement. Two publications resulted from this.

Service

RIT Service

- a. 2020 present. **Member**, 20th Anniversary Committee.
- b. 2020 present. **Member**, Digital Capstone Committee.
- c. 2019 present. **Chair**, Increasing Undergraduate Engagement in Research.

Conference Committees

- a. 2021 ACM ASSETS: Proceedings **Chair**.
- b. 2021 ACM CHI: App & e-Rights Co-Chair.
- c. 2020 ACM ASSETS: Doctoral Consortium **Co-Chair**.
- d. 2020 ACM ASSETS: Program Committee (PC) **Member**.
- e. 2019 ACM CHI: Program Committee (PC) **Member**, Late Breaking Work.
- f. 2018 ACM CHI: Program Committee (PC) **Member**, Late Breaking Work.
- g. 2017 Organising Committee **member** for SICSA PhD Conference.
- h. 2017 Senior **Co-Chair** University of Dundee Computing PhD Symposium.
- i. 2016 Junior Co-Chair University of Dundee Computing PhD Symposium.

Conference Student Volunteer

- a. 2019 ACM CHI Conference on Human Factors in Computing Systems
 - i. I was also selected to support the Accessibility and Aging subcommittee during the CHI 2019 PC Meeting.
- b. 2018 ACM SIGACCESS Conference on Computers and Accessibility.
- c. 2018 ACM CHI Conference on Human Factors in Computing Systems.
- d. 2017 ACM CHI Conference on Human Factors in Computing Systems.

Mentor

- a. June 2018 SICSA HCI Doctoral Consortium PhD Mentor.
 - i. As a senior PhD student, I was invited to attend the doctoral consortium to offer advice and support the PhD students in attendance.

Reviewing Academic Papers (2015-2020)

I have reviewed for the following venues: ACM ASSETS, ACM CHI, ACM DIS, ACM Transactions on Accessible Computing (TACCESS), Graphic Interface (GI), International Journal of Human-Computer Studies.

University of Dundee Service

- a. Ethics Committee
 - i. Computing Ethics Committee, October 2016 February 2019
 - o I would review submissions requesting approval to run academic studies and mentor new members of the committee
- b. Judging
 - i. Academic Judge for the Annual Computing PhD Symposium, May 2019
 - I was invited to join as a member of the judging panel for the University of Dundee Computing PhD Symposium. The panel was tasked with selecting the best presentations by a non-transfer student (PhD Student) and a transfer student (PhD Candidate).
- c. Mentoring
 - i. Fourth year Psychology Undergraduate Mentor, September 2011- July 2012
 - The psychology mentor system was set up to encourage interaction between the different years in the School of Psychology. In 4th year, I was a mentor to psychology undergraduate students in earlier years to provide academic and personal advice and support.
- d. Volunteering
 - i. Alternative Formats, March 2012 May 2012
 - I volunteered with the Alternative Formats service to convert resources (e.g., books) into a different medium for students who had physical and/or visual impairments.

Current Professional Memberships

- a. Association of Computing Machinery
 - Member, 2016 present

Awards and Special Recognition

- a. 2021. One recognition for an outstanding CHI 2021 paper review.
- b. 2020. Two recognitions for outstanding CHI 2020 paper reviews.
- c. 2009. NCR Award for Top Level 1 Applied Computing Student.

Professional Development

- a. 2020. Faculty and Staff Sign Language ASL 1B TWA.
- b. 2019. Faculty and Staff Sign Language ASL 1A TWA.

Outreach and Public Engagement

- a. Nov 2018 SICSA DemoFest held at Dynamic Earth, Edinburgh, 6th of November, 2018. I demoed BrightLights to an industry audience.
- b. 2014 2018 Volunteer for Computing University of Dundee Strathmore Trophy.
 - i. The Strathmore Trophy competition is an annual event that began in 1996. S1/S2 level high school students are invited to take part in a computing-related challenge. Previous challenges include designing "Technology T-Shirts", "Smart Watch Applications", and "Authentication Invulnerable to Shoulder Surfing".
- c. 2014 2018 Open Days Speaker and Lab Demonstrations for Computing, University of Dundee.
- d. May 2018 Judging for Angus Games Con 2018 at Computing, University of Dundee.
 - Teams from 3 primary schools were invited to create a game/animation on the topic
 of staying safe online and the teams took part in an accessibility coding challenge on
 the day.
- e. Oct 2017 SICSA DemoFest held at Dynamic Earth, Edinburgh, 3rd of October, 2017. I demoed Virtual Virtuoso to an industry audience. Virtual Virtuoso is a Virtual Reality sandbox for musical exploration that embeds musical metaphors into an immersive experience for novice music creators developed by Lewis Davie.
- f. March 2017 Supporting High School students during a Scratch evening class, University of Dundee
- g. November 2016 Dundee Science Festival evening technology demonstrations for the public.