
SKILL SUMMARY

- Over 4 years of teaching experience in prototyping, interaction design and programming
- Extensive experience with qualitative research and analysis methods
 - 1:1 interviews, observations, questionnaires, thematic analysis and affinity diagramming
- Proficient at running quantitative research experiments and recruiting specialised participants
- Ability to produce effective presentations, research posters, and visuals using:
 - Keynote/PowerPoint, Photoshop and Sketch
- Programming languages and Frameworks
 - Java, C++, C#, C, SQL
 - HTML/CSS, PHP, Javascript, OpenFrameworks, OpenCV, Android, Arduino, Processing

EDUCATION

Ph.D., Computer Science (HCI)

University of Dundee

January 2014 – December 2017 (Defended)

Supervised by Dr. David Flatla

Thesis title: *A Framework for Speechreading Acquisition Tools*

My thesis research was focused on developing tools to enhance the acquisition of speechreading (lipreading) for people with hearing loss. To do this, I established a network of Scottish speechreading tutors and students, and conducted one-to-one interviews and questionnaires with these stakeholders.

- I used the findings to synthesise a design framework that can be used to develop Speechreading Acquisition Tools (SATs) – a new type of technology to improve speechreading acquisition.
- To demonstrate the framework's effectiveness, I developed and evaluated two new SATs for both acquiring and enhancing day-to-day speechreading:
 - 1) *PhonemeViz*, a visualisation that displays a subset of a speaker's spoken phonemes to the speech-reader to reduce viseme confusion that can occur at the start of words. The design of PhonemeViz was inspired by the 'initial-letter fingerspelling' technique described by speechreading tutors during the interviews.
 - 2) *MirrorMirror*, a brain-training inspired Android application that allows speechreaders to record videos of their own and other's lipshapes to help them practice speechreading. The design of MirrorMirror was inspired by the 'mirror practice' technique described by speechreading tutors during the interviews.

B.Sc., Applied Computing (Honours)

University of Dundee

September 2008 – March 2012

First Class Degree

Project title: *Adaptive Advertising*

Supervised by Jonathan Black (NCR) and Professor Vicki Hanson (University of Dundee)

- Developed a system that served relevant adverts by detecting individuals viewing a digital signage display. By using 3rd party anonymous video analytics from Intel, real-time viewer details were compared against weighting factors set for each advert, with the most relevant adverts displayed.
- The project was composed of two parts; a desktop application written in C# and WPF, and a web application written in Ruby on Rails.

TEACHING EXPERIENCE & EMPLOYMENT

Sessional Lecturer / Lecturer / Tutor

University of Dundee, Dundee, Scotland, U.K.

2015 – Present

Delivering lectures to first year undergraduate Applied Computing and Computer Science students and second year undergraduate Product Design, Interaction Design and Interior and Environmental Design students. Creating and assessing student assignments from programming to practical work, and presentations. Teaching and supervising in a lab-based setup with practical demonstrations of programming, soldering and circuit design.

Sessional Lecturer

- AC22006 – *Physical Computing* (Arduino & Java)

2018

- AC11003 – *Java Online* (Distance Learning Course) Summer 2017
- SS03009 – *DUAL Summer School* (Pre-undergraduate Course) Summer 2017

Lecturer

- AC21011 – *Creative Interactions* (Processing & Java) 2017
- AC22006 – *Physical Computing* (Arduino & Java) 2016, 2017
- AC21010 – *Data Visualisation* (Processing & Java) 2015, 2016

Tutor

- AC12001 – *Introduction to Data Structures and Algorithms* (Java) 2018

Teaching Assistant

University of Dundee, Dundee, Scotland, U.K. 2014 – 2015

- Marking of undergraduate assignments on two first year Java courses: AC11001 – Introduction to Software Development and AC12001 – *Introduction to Data Structures and Algorithms*.
- Assignments were marked within a weekly turnover period and students were provided with detailed feedback about their work.

Analytics Developer

Dynamo Games, Dundee, Scotland, U.K. June 2011 – January 2012

- Working in an award winning Scottish game development studio, I helped co-develop a system that tracked and analysed Facebook player data. This data was used by the developers and marketing team to direct future game development.
- Tested games and recorded any errors or bugs found so that the development team could locate and correct them.

AWARDS

Postgraduate

- Gold Medal for ASSETS 2014 Graduate Student Research Competition October 2014
- Alex Carmichael Research Prize for top Ph.D. Research in Computing May 2014, May 2017

Undergraduate

- NCR Award for Top Level 4 Applied Computing Student June 2012
- NCR Award for Top Level 2 Applied Computing Student June 2010
- NCR Award for Top Level 1 Applied Computing Student June 2009

PEER-REVIEWED PUBLICATIONS

1. **Benjamin M. Gorman** and David R. Flatla, 2018. "MirrorMirror: A Mobile Application to Improve Speechreading Acquisition". In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems. ACM, ACM, New York, NY.
2. **Benjamin M. Gorman** and David R. Flatla, 2017. "A Framework for Speechreading Acquisition Tools" In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems. ACM, ACM, New York, NY.
3. Michael Mauderer, Garreth W. Tigwell, **Benjamin M. Gorman**, David R. Flatla, 2017. "Beyond Accessibility: Lifting Perceptual Limitations for Everyone." Proceedings of the CHI 2017 Workshop on Amplification and Augmentation of Human Perception. ACM, ACM, New York, NY.
4. **Benjamin M. Gorman**, 2016. "Reducing viseme confusion in speechreading" ACM SIGACCESS Accessibility and Computing. 114, 36 - 43. ACM, ACM, New York, NY.
5. **Benjamin M. Gorman**, 2015. "VisAural: a wearable sound-localisation device for people with impaired hearing." Proceedings of the 16th international ACM SIGACCESS conference on Computers & accessibility. ACM, ACM, New York, NY.
6. **Benjamin M. Gorman** and David R. Flatla, 2014. "VisAural: A Tool for Converting Audible Signals into Visual Cues." Proceedings of the CHI 2014 Workshop on Assistive Augmentation. ACM, ACM, New York, NY.

PRESENTATIONS

Conference Paper Presentation "MirrorMirror: A Mobile Application to Improve Speechreading Acquisition" 2018, 20 minutes. *CHI 2018, Montréal, Quebec, Canada.*

Conference Paper Presentation "A Framework for Speechreading Acquisition Tools" 2017, 20 minutes. *CHI 2017, Denver, Colorado. U.S.A.*

Invited Speaker “A Framework for Technology to Improve Speechreading” 2016, 60 minutes. *Speech and Hearing Sciences Department, Queen Margaret University, Edinburgh, Scotland, U.K.*

Doctoral Training Day - Discussion Primer “A Mathematical Description of the Speed/Accuracy Trade-off of Aimed Movement” 2015. 10 minutes. *British HCI 2015, Lincoln, England, U.K.*

Doctoral Consortium “Reducing viseme confusion in speech-reading” 2015, 20 minutes. *ASSETS 2015, Lisbon, Portugal.*

Doctoral Consortium “Improving Speechreading by Visualising Phonemes” 2015, 20 minutes. *SICSA HCI DC 2015, Dundee, Scotland, U.K.*

Student Research Competition “VisAural: a wearable sound-localisation device for people with impaired hearing” 2014, 15 minutes. *ASSETS 2014, Rochester, NY, USA.* - *Awarded Graduate SRC 1st Place - Gold Medal and \$500 USD.*

Dundee University Computing Department Ph.D. Symposium (2014, 2015, 2016, 2017). 20 minutes. *Dundee, Scotland, U.K.*

GRANTS & FUNDING

ESPRC Doctoral Training Account: Ph.D. Scholarship awarded by the Engineering and Physical Sciences Research Council (ESPRC), including tuition fees, stipend and travel budget. (£64,000)

ASSETS 2015: Accepted to attend the Doctoral Consortium at Assets 2015. Awarded full travel and accommodation costs for the duration of the conference (£1250).

British HCI 2015: Accepted to attend the Doctoral Consortium at British HCI 2015. Awarded full travel and accommodation costs for the duration of the conference (£500).

ASSETS 2014: Accepted to attend the Student Research Competition at Assets 2014. Awarded US\$500 towards travel and accommodation costs.

Experimental Methodology in Computational Science Research Summer School, St. Andrews University: Accepted to attend the summer school, and awarded accommodation and workshop costs, 2014 (£500).

SUPERVISION EXPERIENCE

M.Sc. Student Supervision

- Second Supervisor: Matthew Shield – “Visualising Automated Captioning Uncertainty to Improve Caption Understandability” (April 2015 – September 2015)

B.Sc. Honours Student Supervision

- Second Supervisor: Meadhbh Murphy – “Abstract Visualisations to Improve Lipreading” (September 2016 – April 2017)

Nuffield Research Placement Students (High School students)

- Ben Harper – “Physical Games in the Workplace” (June 2016 – August 2016)
- Hamish Neil – “Visualising Sounds to Aid the Deaf and Hard of Hearing” (June 2015 – August 2015)

PROFESSIONAL SERVICE

Program Committee (PC) Member, Late Breaking Work - CHI 2018

2018

Academic Paper Reviewing

2014 – Present

Venue – year (# of papers) Total (23):

- CHI 2018 Works-In-Progress: 2017 (3)
- TACCESS Journal Paper: 2017 (1)
- Graphics Interfaces Full Papers: 2017 (1)
- CHI 2017 Student Research Competition: 2017 (1)
- DIS: 2017 (2)
- DIS Works-In-Progress: 2016 (3)
- ASSETS 2015 Full Papers: 2015 (5)
- CHI 2015 Full Papers: 2015 (1)
- CHI 2015 Works-In-Progress: 2015 (1)
- Mobile HCI 2014 Demonstrations and Mobile Experience: 2014 (1)
- ASSETS 2014 Full Papers: 2014 (4)

OUTREACH

- SICSA DemoFest Presenter: 2017
- BBC Make It Digital Tour Volunteer: 2015
- Dundee Games Jam Volunteer: 2015
- Dundee University Strathmore Trophy Volunteer: 2014 – 2018
- Dundee University Computing Open Days Speaker: 2014 – 2018