

Ross David McLachlan

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EDUCATION

UNIVERSITY OF GLASGOW

PH.D. IN COMPUTING SCIENCE
Sept 2015 | Glasgow, UK

Thesis: Pressure as a Non-Dominant Hand Input Modality for Touchscreen Tablets

Supervisor: Professor Stephen Brewster in collaboration with Bang & Olufsen

MSc IN SOFTWARE ENGINEERING

June 2011 | Glasgow, UK
2:1 (Upper Second Class Honors)

Thesis: Investigating the Structure and Design of Musicons.

Supervisors: Stephen Brewster and Marilyn McGee-Lennon

SKILLS

PROGRAMMING

Proficient: Java • C# • Python • Android
WPF/.NET • HTML5 • Javascript
L^AT_EX • CSS
Knowledgeable: iOS • R • MySQL

COMMUNICATION

Full paper talks
ICAD 2012 • INTERACT 2013 • CHI 2014
Invited Talks
Bang & Olufsen Innovation Camp

RESEARCH

CORNELL TECH CONNECTED EXPERIENCES LAB

POSTDOCTORAL ASSOCIATE
Oct 2015 – Present | New York, NY, USA

This ongoing research focuses on developing new technologies to support local communities in urban areas. Two projects are currently underway. The first, Movement, is an app and public visualization that aims to connect people via shared location histories to increase community awareness in a secure and private manner. The second is a large mixed methods investigation into P2P physical resource sharing in local communities through new sharing economy platforms.

GLASGOW INTERACTIVE SYSTEMS GROUP

PH.D RESEARCHER
Sept 2011 – Sept 2015 | Glasgow, UK

In collaboration with Bang & Olufsen, this research explores novel ways to use pressure as an auxiliary input modality for bimanual interaction techniques on tablet devices. This has involved designing and running controlled lab experiments investigating human ability to control pressure and designing and evaluating prototype applications that embody the findings.

SUMMER RESEARCH INTERN

June – August 2011 | Glasgow, UK

This project investigated and characterised the power consumption of various common interface widgets, with a view to reducing PC power consumption from the interface level. The results were presented as a poster at ACM CHI 2012.

SUMMER RESEARCH INTERN

June – August 2010 | Glasgow, UK

As part of the **MultiMemoHome** project, I carried out an initial investigation into the use of extremely brief samples of well-known music as auditory notifications. During the internship, I designed and experimentally evaluated a number of musically derived audio cues. The project resulted in the invention of the 'Musicon' notification type and the results were published at ACM CHI 2011.

INDUSTRY

BANG & OLUFSEN | INTERACTION DESIGN INTERN

October - December 2014 | Struer, Denmark

During this internship at Bang & Olufsen, I was working directly with lead concept developers using the results from my Ph.D research to develop novel interaction techniques for a new audio product. Working with bespoke B&O hardware and developing prototype software using a combination of C#/Windows Presentation Framework and Javascript/d3.js, the finished prototype was presented to the Concept Development/User Experience and Prototyping teams, and to the CEO/COO, with the prospect of it being included in a future release of the product.

BANG & OLUFSEN | INTERACTION DESIGN INTERN

September - November 2011 | Struer, Denmark

This internship at Bang & Olufsen served two purposes: to get to know the company with whom I would be working during my Ph.D. and to develop EPG interface prototypes for B&O televisions. During the internship I developed working prototype EPG (electronic programming guide) interface using C#/Windows Presentation Framework based on concept renderings that could be used to carry out user evaluations.

COURSEWORK

MASTERS

Software Engineering
Real Time and Embedded Systems
Enterprise Computing

HONOURS

Advanced Communications
Algorithmics
Database Systems
Design & Eval of Multimedia Systems
Distributed Algorithms and Systems
HCI Collaborative & Distributed Systems
Interactive Systems
Network Communications
Operating Systems
Professional Issues
Safety Critical Systems

SERVICE ACTIVITIES

Co-SEMINAR CONVENER, GIST GROUP

This role involves the organisation of the weekly seminar series for the HCI group at Glasgow University.

STUDENT VOLUNTEERS CHAIR, MOBILEHCI 2014

As one of the volunteer chairs, I was responsible for coordinating the recruitment and management of student volunteers at the conference.

STUDENT VOLUNTEER IN CHARGE OF INTERACTIVITY, ACM CHI 2014

This role involved the assisting the interactivity chairs during the planning and curation process for the interactive demo session at the ACM CHI 2014 conference. This included reviewing submissions, creating the floor plan and assisting with the setup at the conference.

TEACHING

UNIVERSITY OF GLASGOW

SUMMER SCHOOL LECTURER

June-August 2011 and 2012

I taught the programming section of the computing science summer school, which involved introducing final year high school students to basic programming concepts, using the Python programming language. My responsibilities included writing and giving lectures; preparing lab material and running lab sessions; writing and marking the final exam, as well as providing the students with more general feedback and information about studying computing science at The University of Glasgow.

COURSE TUTOR

As a course tutor for a number of 2nd year computing science courses, my responsibilities included running lab sessions, marking coursework and providing help to students. Courses included Java Programming 2, Information Management 2, Algorithms and Data Structures 2, Object Oriented Software Engineering 2.

LAB DEMONSTRATOR

Providing help and feedback to students during lab sessions. Courses included Operating Systems 3, Network Systems 3 and Interactive Systems 3.

PUBLICATIONS

1. McLachlan, R. and Brewster, S. Bimanual Input for Tablet Devices with Pressure and Multi-Touch Gestures. *In Proceedings of ACM MobileHCI 2015*. (Copenhagen, Denmark). ACM Press Addison-Wesley.
2. Boland, D., McLachlan, R. and Murray-Smith, R. Engaging with Mobile Music Retrieval. *In Proceedings of ACM MobileHCI 2015*. (Copenhagen, Denmark). ACM Press Addison-Wesley.
3. McLachlan, R., Boland, D. and Brewster, S. Transient and Transitional States: Pressure as an Auxiliary Input Modality for Bimanual Interaction. *In Proceedings of ACM CHI 2014*. (Toronto, ON, Canada). ACM Press Addison-Wesley.
4. McLachlan, R., and Brewster, S. Novel Modalities for Bimanual Scrolling on Tablet Devices. *In Proceedings of IFIP INTERACT 2013*, (Cape Town, South Africa), Springer Berlin Heidelberg (2013), 229-246.
5. McLachlan, R., and Brewster, S. Can you handle it?: bimanual techniques for browsing media collections on touchscreen tablets. *In Proceedings of ACM CHI EA '13*. ACM Press Addison-Wesley, 3095-3098.
6. McLachlan, R., McGee-Lennon, M. and Brewster, S. The Sound of Musicons: Investigating the Design of Musically Derived Audio Stimuli. *In Proceedings of ICAD 2012*. (Atlanta, Georgia, USA), The International Community for Auditory Display, 148-155
7. McLachlan, R. and Brewster, S. Towards New Widgets to Reduce PC Power Consumption. *In Proceedings of ACM CHI EA '12* (Austin, Texas, USA), ACM Press Addison-Wesley, 2153-2158
8. McGee-Lennon, M., Wolters, M., McLachlan, R., Brewster, S.A. and Hall, C. Name That Tune: Musicons as Reminders in the Home. *In Proceedings of ACM CHI 2011* (Vancouver, CA). ACM Press Addison-Wesley, 2803-2806