

Joseph W. Newbold

Audio Designer and HCI Researcher

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Profile

- ❑ PhD candidate in the UCL Interaction Centre, currently exploring how musically-informed sonification can be used to support physical activity. Interested in designing interactive systems and multimodal interaction with experience in sonification design, audio engineering, quantitative and qualitative experimentation and analysis.
- ❑ Extensive knowledge of Audio and rapid prototyping with a passion for exploring sound and technology. Lots of experience with both self-management and working with a team.
- ❑ Teaching experience for both undergrad and postgrad modules in both computer science and human-computer interaction

Education

2014- Present

PhD in Human-computer interaction
University College London

“Musically-informed Sonification to Support Physical Activity”

Exploring how implicit/embodied aspects of music can be used within sonification to support physical activity for both general well-being and chronic pain rehabilitation. This project involves developing sonification designs to overcome psychological barriers to physical activity, alongside both quantitative and qualitative evaluation.

2010-2014:

MEng Electronic Engineering with Music Technology Systems
Hons 2.i

University of York

“Chemical Spectral Analysis through Sonification” supervised by Andy Hunt and Jude Brereton

An investigation into different sonification methods and how they can be used to aid analytical chemists. Worked alongside the Department of Chemistry to design and evaluate different methods for turning NMR data into sound.

Other projects

2018

Microsoft Research Intern – VUI for health tracking

Three-month internship developing the design space surrounding voice interaction for health tracking, focusing on self-monitoring for mental health exploring both the technological and sociological affordances of an in home conversational agent for engaging with a CBT program

2017

“WeDraw” EU project working with UCL Knowledge Lab and Università Degli Studi Di Genova

A H2020 funded, EU collaboration exploring how multimodal interaction can be used to address barriers to learning maths in children. Worked running exploratory studies with children and designing auditory display systems.

2015

“The Hearing Body” with Dr. Ana Tajadura-Jiménez

Exploring how altering body movement sounds impacts people’s movement behaviour. This project used real-time signal processing of a person’s footsteps to change the way they walked and how they felt about their body. Worked as a Research assistant to help manage experiments and collect and analysis data.

2015

Physiological Data Sensing at the Edinburgh Fringe with the BBC

A project with the BBC exploring how to measure physiological data at live comedy performances to enhance at home viewer experience. Worked to develop wireless “laughter sensors” and deployed them along with other sensors at a number of performances at the Edinburgh Fringe festival with BBC R&D.

Teaching

- Awards:** **Associate Fellow of the Higher Education Academy**
- Teaching:** **2015-2017** Affective Interaction, Masters module (TA)
2015-2017 Affective Computing and Human Robot Interaction (TA)
2016-2017 Software Engineering and Human Computer Interaction (Lead TA)
2016-2017 App Design, Masters module (Lead TA)
2016-2017 Interaction Design (TA)
- Experience:** Lecturing, interactive activities, running lab work, designing/preparing course materials, supervision and assessment
- Supervision:** **Final year psychology undergrad 2016**
Final year computer science undergrad 2016
HCI MSc project 2017

Skills

- Computing:** Can program in C, JAVA, Arduino, Android, Pure Data, Supercollider and Eyesweb
- Tools:** Proficient with Matlab, SPSS, R and Latex
- Experience with Eclipse, Visual Studio, xCode, a number of DAWs and Premier pro

Additional Information

- ❑ **President of University of London Canoe Polo Club:** Ran University sports club and its various teams including: developing the Club, managing the committee and increasing membership.
- ❑ **Avid White-water Kayaker:** Have been kayaking since 2004, including coaching beginners and leading trips across the UK and Abroad.
- ❑ **Experienced Musician and Sound Designer:** Have been performing and recording Music since 2009 as well as, producing music for other artists and doing sound design and Foley for a podcast drama.

Selected Publications

- [1] J. W. Newbold, A. Hunt, and J. Brereton, "Chemical Spectral Analysis through Sonification," in *International Conference on Auditory Display*, 2015.
- [2] J. W. Newbold, N. Bianchi-Berthouze, N. . . Gold, and A. Williams, "Musically Informed Sonification for Self-Directed Chronic Pain Physical Rehabilitation," in *Sound and Music Computing*, 2015.
- [3] J. W. Newbold, N. Bianchi-Berthouze, N. E. Gold, A. Tajadura-Jiménez, and A. C. Williams, "Musically Informed Sonification for Chronic Pain Rehabilitation: Facilitating Progress & Avoiding Over-Doing," in *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, 2016, pp. 5698–5703.
- [4] J. W. Newbold, N. Bianchi-Berthouze, and N. E. Gold, "Musical Expectancy in Squat Sonification for People who Struggle with Physical Activity," in *International Conference on Auditory Display*, 2017.
- [5] J. W. Newbold, J. Luton, A. L. Cox, and S. J. J. Gould, "Using Nature-based Soundscapes to Support Task Performance and Mood.," in *CHI Extended Abstracts*, 2017, pp. 2802–2809.
- [6] T. A. Olugbade, L. Cuturi, G. Cappagli, E. Volta, P. Albornò, J. W. Newbold, N. Bianchi-Berthouze, G. Baud-Bovy, G. Volpe, and M. Gori, "What Cognitive and Affective States Should Technology Monitor to Support Learning?," in *Proceedings of the 19th ACM International Conference on Multimodal Interaction*, 2017.

Referees

PhD Supervisor and WeDraw line manager – Prof Nadia Bianchi-Berthouze – n.berthouze@ucl.ac.uk

PhD Supervisor – Nicolas Gold – n.gold@ucl.ac.uk

Microsoft supervisor – Anja Thieme – anthie@microsoft.com