David Bradford Ramsay, PhD

davidbramsay.com

Assistant Professor of Computing
Director of Idea Realization Lab
DePaul University

243 S Wabash, Chicago, IL 60604
(703)-347-1376
david.ramsay@depaul.edu

David is a Fulbright-winning researcher who spent three years as an audio systems engineer in Bose Research before earning his PhD from the famous MIT Media Lab in 2023. At MIT, he spent two summers in Shenzhen, China improving his hardware design and manufacturing skills under the supervision of Andrew 'bunnie' Huang and published his work on 'edge' deep learning models completed at Google AI in Zurich. David created and taught MIT's first for-credit class focused on psychology's replication crisis, for which he was selected as his department's nominee for MIT's Goodwin Teaching Award. He was a lead TA and lecturer in Roz Picard's 'AI and Mental Health' class among others. David's work appears in 16 peer-reviewed publications, 2 patents, has been discussed on NPR and exhibited at the MIT Museum.

EDUCATION

Massachusetts Institute of Technology	2023 PhD Media Lab 2016 M.S. Media Lab
Case Western Reserve University	2010 B.S. Electrical Engineering 2010 B.A. Music

ACADEMIC EXPERIENCES

Dublin Institute of Technology	Fulbright Researcher 2010-2011 People Oriented Technology Group Audio Research Group
Berklee College of Music (Online)	Professional Certificate in Music Production
MIT Manufacturing Practicum, 2x	Summer 2016 and Summer 2018 Shenzhen and Dongguan, China; Seoul, South Korea under the supervision of Dr. Andrew 'bunnie' Huang

National Institute of Health	Nat'l Institute of Neurological Disorders and Stroke 2016 Biomedical Engineering Summer Internship under the supervision of Dr. Jeffrey Smith
Naval Research Laboratory	Chemistry Division, Tribology Group 2004, 2005, 2007 Materials Research Intern under the supervision of Dr. Kathryn Wahl

PROFESSIONAL EXPERIENCE

Google Inc., 2x	2018 Software Engineering Intern Google AI Team – on-device machine learning 2017 Software Engineering Intern Fuchsia Team – operating system user experience
Bose Corporation, 2x	2011-2014 Electrical and Systems Engineer II PACE Rotation Program - Audio Applied Research Group (2 years) - Noise Reduction Technology Advanced Development Group (6 months) - Automotive Systems EE Group (6 months) 2010 Systems Engineering Intern Audio Applied Research Group
General Electric: Energy Division	2009 Electrical Engineering Intern

PEER-REVIEWED PUBLICATIONS

Wearables to Measure Focus

AirSpec: A Smart Glasses Platform, Tailored for Research in the Built Environment. *Chwalek, P., Zhong, S., Ramsay, D., Perry, N., & Paradiso, Adjunct Proceedings of the 2023 ACM International Joint Conference on Pervasive and Ubiquitous Computing & the 2023 ACM International Symposium on Wearable Computing, 2023.*

Captivates: A Smart Eyeglass Platform for Across-Context Physiological Measurement. (Magazine Spotlight Version) *Chwalek, P, Ramsay, DB, and Paradiso, J. GetMobile: Mobile Computing and Communications 27 (2), 18-22, 2023.*

Designing for Deep Engagement. *Ramsay, DB. GetMobile: Mobile Computing and Communications 27 (2), 18-22, 2023. MIT Media Lab, 2023.* (PhD Thesis)

Captivates: A Smart Eyeglass Platform for Across-Context Physiological Measurement. *Chwalek, P, Ramsay, DB, and Paradiso, J. IMWUT 2021.* **Distinguished Paper Award (top 2.5% journal papers).**

Peripheral Light Cues as a Naturalistic Measure of Focus. *Ramsay, DB, and Paradiso, J. IMX 2022.*

Equinox: Exploring Naturalistic Distortions of Time Perception. *Ramsay, DB, and Paradiso, J. SmartWear 2022.* **Best Paper Award.**

Interventions to Alter Engagement

Huxley: Intelligent Book as Essentialist Artefact *Ramsay, DB, and Paradiso, J. DesFORM 2019.*

YourAd: A User Aligned, Personal Advertising System *Ramsay, DB, and Paradiso, J. CHI EA 2019.*

ML for Perception

Towards "Gestalt" Computation in Sound *Ananthabhotla, I, Ramsay, DB, and Paradiso, J. NeurIPS Creativity in ML Workshop 2021.*

Cognitive Audio Interfaces: Mediating Sonic Information with an Understanding of How We Hear. *Ananthabhotla, I, Ramsay, DB, Duharte, C, and Paradiso, J. IEEE Pervasive 2021.*

Low-Dimensional Bottleneck Features for On-Device Continuous Speech Recognition. *Ramsay, DB, Kilgour, K, Roblek, D, and Sharifi, M. Interspeech 2019.* (**completed at Google AI**)

HCU400: An Annotated Dataset for exploring aural phenomenology through causal uncertainty. *Ramsay, DB, Ananthabhotla, I, and Paradiso, J. IEEE ICASSP 2019.*

The Intrinsic Memorability of Everyday Sounds. *Ramsay, DB, Ananthabhotla, I, and Paradiso, J. AES Immersive and Interactive Audio 2018.*

Applied Signal Processing

GroupLoop: A Collaborative, Network-Enabled Audio Feedback Instrument. *Ramsay, DB, and Paradiso, J. NIME 2015.* (try it)

A Novel Fourier Approach to Guitar String Separation. *Ramsay, DB, Burke, T, Barry, D, and Coyle, E. ISSC 2011.* (**completed on Fulbright**)

Air Quality Monitoring

The LearnAir Network. *Ramsay, DB and Paradiso, J. IEEE Pervasive, 2019.*

Making Air (Quality) Visible: Exploiting new technologies to dramatically improve atmospheric monitoring. *Ramsay, DB, Paradiso, J, and Hamburg, S. IEEE Pervasive, 2018.*

LearnAir: towards Intelligent, Personal Air Quality Monitoring. *Ramsay, DB. MIT Media Lab, 2016.* (Master's Thesis)

Misc. Base plate mechanics of the barnacle Balanus Amphitrite. *Ramsay, DB, Dickinson, G, Orihuela, B, Rittschof, D and Wahl, K. Biofouling 2008.* (**completed at Naval Research Laboratory**)

POSTERS AND INVITED TALKS

Towards Causal Psychophysiology in the Wild: Probabilistic Programs for Skin Conductance Analysis. *Ramsay, DB, Chwalek, P, van de Meent, JW, and Paradiso, J. PROBPROG 2020.* (Poster)

Automated Characterization of Consumer Grade Sensor Accuracy from Supporting Data in Heterogeneous Air Quality Monitoring Networks. *Ramsay, DB and Paradiso, J. NEMC, 2017.* (Conference talk)

Psychology Could Use Better Hardware. *Society for Improving Psychological Science, 2022.* (Lightning Talk)

On the Generalizability of Environments. *Ramsay, DB and Paradiso, J. Society for Philosophy and Psychology, 2022.* (Poster)

PATENTS

Methods and Apparatus for Auditory Attention Tracking Through Source Modification.
D.B. Ramsay, J. Paradiso. US 16846300 B2. (MIT Media Lab)
Filed Apr 11, 2020. Granted Nov 23, 2021.

Collaboratively Processing Audio between Headset and Source to Mask Distracting Noise.
D. Gauger Jr., C. Ickler, D.B. Ramsay. US 20150281829 A1. (Bose Research)
Filed Mar 26, 2014. Granted Nov 22, 2016.

TEACHING

DePaul HCI.440 Intro to User Experience Design	Instructor	2023
MIT MAS.S73 Moving Beyond the Replication Crisis	Creator, Main Lecturer	2022
MIT MAS.S61 AI and Mental Health (with Roz Picard)	Lead TA, Lecturer	2021
MIT MAS.836 Sensor Tech for Interactive Environments	Lead TA, Lecturer	2015-17,19,22
MIT MAS.S76 Adventures in Sensing	TA	2021
MIT / Texas Instrument Internet of Things Seminar	Lead TA, Lecturer	2015

TEACHING REVIEWS

HCI.440 (as instructor)

Student Feedback (anon): "I absolutely enjoyed the class, the way it was taught and the amount of creative freedom it provided. It's an experience of teachings that I will hope to remember for lifetime."

"David's Strengths: Excellent in explaining and is very approachable. Weaknesses: None "

"Great teaching techniques. No weakness to say."

"[H]is experience with research, products and the attitude towards the students are super strong and enjoyed by everyone. No weakness as such."

MAS.S73 (as creator/instructor) Department nominee for Goodwin Teaching Medal (as decided by Media Lab Faculty) for creating this course.

Student Comments: "…one of the best-taught classes I've ever taken"

"I can't remember having taken a course so ambitious in scope but also approachable and clear, working from first principles to the state-of-the-art. I suspect I will carry the perspective I gained from the course into my future research in a variety of ways."

"…a highly intellectually stimulating experience that has significantly influenced the way in which I view academic research and examine scientific evidence."

"I cannot emphasise enough how insightful, well-organised, and enjoyable this class was!"

"I felt like I was at MIT since my comments were heard and considered." (online student accommodated from Mexico)

"David's work ethic for teaching is stronger than any other graduate student that I have ever seen." (guest lecturer)

MAS.S61 (as TA)	7.0/7.0 (3 ratings)
Student Feedback (anon):	'Best professor I have had in a long time'
MAS.S76 (as TA)	7.0/7.0 (3 ratings)
Student Feedback (anon):	--
MAS.836 (as TA)	6.7/7.0 (11 ratings over 4 years as TA)
Student Feedback (anon):	'Best TA ever!'

'David organized recitations and made himself available for help. He knows the subject well and he is also very good at explaining the concepts. He has been extremely patient and helpful to answer my questions on the homework and labs.'

'Helped us immensely on the labs & recitations, excellent TA'

MENTORSHIP

Supervisor for Undergraduate Researchers (UROPs), 5x	2016-2020
Graduate Resident Assistant, East Campus	2016-2023
Big, Big Brother/Big Sister (BBBS) Program	2022-2023
Founder and Organizer, Bose Young Professionals (onboarding and events)	2012-2014

ENTREPRENEURSHIP

CTO, Mindsprout	2015-2016
Organizer and Web Development Lead, MIT Global Startup Workshop	2015-2016

AWARDS

Honorable Mention, MIT Schwartzman College of Computing 'Envisioning the Future of Computing' Prize 2023

Distinguished Paper Award IMWUT 2022

Best Paper Award SmartWear 2022

IDEO Designing for Digital Thriving Challenge Grant Awardee 2022

Department Nominee, Goodwin Teaching Award 2021

AIGrant Awardee 2019

Fulbright Scholarship 2011

Case Trustee's Scholarship

Case Alumni Association Scholarship

National Merit Finalist Scholarship

Who's Who Among Students at American Universities and Colleges

AP Scholar Award

Naval Research Lab Honor Mention for Outstanding Research Presentation

Naval Research Lab Science and Engineering Apprenticeship Program Achievement Award

MISCELLANEOUS

NPR Spotlight, "Towards New Musics: What the Future Holds for Sound Creativity" 2019.

MIT Museum hosted 'MetaPiano' art project, 2015-2018

Played in a folk-band, gear-nut, college DJ, guitarist, traveler, hiker, outdoorsman ☺