

St. Louis | Missouri

michael.barkasi@gmail.com | michaelbarkasi.com

Academic Research Publications: <https://philpeople.org/profiles/michael-barkasi>

October 2023

Selected Work Experience

Lecturer, Philosophy and Philosophy-Neuroscience-Psychology

Washington University in St. Louis (MO, United States)

2023/09 — Present

- ▶ Design and teach university courses in cognitive science and philosophy, including at the advanced (junior/senior) level.
- ▶ Create Python demos in CoLab for cognitive science concepts, such as PSS, neural networks, and machine learning.
- ▶ Advise majors in the Philosophy-Neuroscience-Psychology program on course selection and career preparation.

Postdoctoral Visitor at Harris Multisensory Integration Lab

York University, Centre for Vision Research (ON, Canada)

2023/07 — 2023/08

- ▶ Designed experiments using a movement sonification device to test how the brain uses artificial auditory feedback to improve motor control.
- ▶ Collected data from human participants from a bespoke inertial sensor system and optical motion capture system (OptiTrack/NaturalPoint).
- ▶ Analyzed motion kinematics and statistics of large (> 20 million rows) datasets of motion recordings in R.
- ▶ Designed algorithms for signal filtering, time-series synchronization, and model fitting.
- ▶ Drafted scientific manuscripts presenting experimental results.

Founder, Lead Technology Developer

Performance Sonification Corp. (ON, Canada)

2021/08 — 2022/09

- ▶ Translated cutting edge academic research on human perception into a tangible product.
- ▶ Wrote lightweight, accurate motion processing algorithms (C++) for inertial sensors in embedded systems (ESP32, Cortex M4) and for analyzing that data (R).
- ▶ Designed and built innovative wearable sensor systems that convert motion into sound.
- ▶ Prototyped iteratively, via CAD modeling, 3D printing, and low-volume PCB production, until device benchmarks were met.
- ▶ Established a long-term collaboration with a lab at York University to develop and test product.
- ▶ Planned a series of experiments to develop and validate a motion sonification product, including passing this project through a university ethics review board (principle author for ethics board submission material).
- ▶ Collected and worked with large datasets (> 1 million rows).
- ▶ Validated new inertial motion processing algorithms against optical motion-capture systems.
- ▶ Developed dynamic time-warping algorithms to match motion paths of different velocities in real-time.
- ▶ Developed ultra-fast (1000Hz), ultra-low latency (10 μ s) digital sound synthesis techniques similar to a class-D amplifier using bare-metal programming.

Postdoctoral Research Fellow at the Network for Sensory Research

University of Toronto, Mississauga (ON, Canada)

2018/07 — 2020/06

- ▶ Carried out leading international research on phenomenal consciousness in dreams, hallucinations, memory, perception.
- ▶ Published papers as sole author, co-authored papers, established research connections in North America, Europe, and Australia.
- ▶ Organized a workshop with leading international and multidisciplinary researchers in philosophy, neuroscience, and engineering (from Canada, the US, Europe, Australia, and Japan).
- ▶ Peer-reviewed for leading philosophy and science journals.

Graduate Researcher and Instructor in Philosophy

Rice University (TX, United States)

2009/08 — 2015/05

- ▶ Fully funded PhD student (tuition plus stipend, valued at \$45k USD/year), plus \$10k+ in additional competitive funding for research, travel, and an extended stipend.
- ▶ Conducted philosophical research in philosophy of perception, presented papers at international conferences, co-organized a reading group, and organized the department's work-in-progress series for students and faculty.
- ▶ Refined department's graduate mathematical logic curriculum, turning rough notes into an in-house textbook (200+ pages).
- ▶ Applied formal semantics (modal logic) to build a theory of the semantics and pragmatics of words like 'may' and 'might'.
- ▶ Taught philosophy courses (logic, philosophy of mind) as an independent instructor and also worked as a teaching assistant.
- ▶ Taught a writing-intensive course in Rice's writing-intensive program for freshman, designed to teach new university students how to write a substantial college research paper.

Professional Affiliations

Associate Member

Centre for Philosophy of Memory at Université Grenoble Alpes (Remote)

2022/03 — Present

- ▶ Conduct philosophical, interdisciplinary research on fundamental questions about the nature of memory.
- ▶ Collaborate on journal articles, contribute to edited collections, and develop fellowship applications with Centre members.
- ▶ Present research at Centre-sponsored conferences and internal work-in-progress seminars.

Academic Research Output

- ▶ 11 **peer-reviewed** research articles in philosophy and psychology journals, 9 as first-author.
- ▶ 17 international academic **conference presentations**, including 5 invited presentations.
- ▶ Regular *ad hoc* **peer reviewer** for premier philosophy and psychology journals.
- ▶ Co-organizer of 2 international academic **workshops**.

Education

2015. **Ph.D. Philosophy.** Rice University.

2011. **M.A. Philosophy.** Rice University.

2009. **B.A. Philosophy, minors in Maths and Physics.** *Summa Cum Laude.* Kutztown University of Pennsylvania.