Narayan Sankaran

Phone: +1 (510) 684 1734
Email: nsankaran@usfca.edu
Home: https://nsankaran.github.io/
ORCID iD: 0000-0002-6788-3878

Education

2012–2018 **Ph.D.,** *Neuroscience*, University of Sydney, Australia

Thesis: The structure of cortical representations of music and speech
Supervisors: Simon Carlile and William Forde Thompson

2006–2010 **B.A.,** *Physics (Music minor),* University of California, Berkeley*,* USA.

Work Experience

2024 – pres. **Assistant Professor,** University of San Francisco, USA
Department of Neuroscience, College of Arts & Sciences

2023 – 2024 **Postdoctoral Fellow,** University of California, Berkeley, USA
Kavli Center for Ethics, Science, and the Public

2018 – 2022 **Postdoctoral Fellow,** University of California, San Francisco, USA
Department of Neurological Surgery / Center for Integrative Neuroscience
Advisor: Edward Chang

2016 **Research Intern,** Starkey Hearing Research Center, Berkeley, USA.

2016 **Research Intern,** Oculus Virtual Reality, Redmond, USA.

2010–2011 **Research Assistant,** *Berkeley Center for Cosmological Physics,* Lawrence Berkeley National Labs, Berkeley CA.

Teaching

2023 **Lecturer**, Department of Molecular & Cell Biology, *University of California, Berkeley*.
MCB290: Neuroscience, ethics, and society.

2020–2022 **Volunteer Instructor**, *Oasis for Girls.*

2019–2020 **Volunteer Instructor.** *Prison University Project* at San Quentin State Prison.

2016 **Instructor**, School of medical sciences, *University of Sydney*.
NEUROSC3904: Music perception and cognition.

2015–2016 **Graduate Teaching Assistant**, School of medical sciences, *University of Sydney*.

NEUROSC3004: Functional Neuroanatomy

2014–2016 **Graduate Teaching Assistant**, School of medical sciences, *University of Sydney*.
BIOS1165: Hearing Science and Audiology

Publications

Preprints

[1] **Narayan Sankaran** & Edward Chang. Neural mechanisms of timbre perception in the human superior temporal gyrus. (Manuscript in preparation)

[2] **Narayan Sankaran** & Winston Chiong. Disparate ethical responses to speech decoding research. (Manuscript in preparation)

[3] **Narayan Sankaran** & Simon Carlile. Perceptual grouping of melodic contour patterns. (Submitted).

Peer reviewed articles

[4] **Narayan Sankaran,** Matthew Leonard, Frederic Theunissen, & Edward Chang (2024). Encoding of melody in the human auditory cortex. *Science Advances.* 10, eadk0010. DOI: 10.1126/sciadv.adk0010

[5] **Narayan Sankaran**, David Moses, Winston Chiong, and Edward Chang (2023). Recommendations for promoting user agency in the design of speech neuroprostheses. *Frontiers in Human Neuroscience* 17: 1298129*.* DOI: https://doi.org/10.3389/fnhum.2023.1298129

[6] Perry, Gemma, Vince Polito, **Narayan Sankaran**, & William Forde Thompson (2022). How Chanting Relates to Cognitive Function, Altered States and Quality of Life. *Brain Sciences* 12, no. 11: 1456.

[7] Ashlyn Schmitgen, Jeremy Saal, **Narayan Sankaran**, Maansi Desai, et al. (2021). Musical Hallucinations in Chronic pain: the anterior cingulate cortex regulates internally generated percepts. *Frontiers in Neurology*. DOI: 10.3389/fneur.2021.669172

[8] **Narayan Sankaran**, Thomas Carlson, & William Forde Thompson (2020). The rapid emergence of musical pitch structure in human cortex. *Journal of Neuroscience*. DOI: 10.1523/JNEUROSCI.1399-19.2020

[9] **Narayan Sankaran**, William Forde Thompson, Simon Carlile, & Thomas Carlson (2018). Decoding the dynamic representation of musical pitch from human brain activity. *Scientific Reports*. DOI: 10.1038/s41598-018-19222-3

[10] **Narayan Sankaran**, Jayaganesh Swaminathan, Christophe Micheyl, Sridhar Kalluri, & Simon Carlile (2018). Tracking the dynamic representation of consonants from

auditory periphery to cortex. *The Journal of the Acoustical Society of America*. DOI: 10.1121/1.5065492

[11] Heather Kelly, Gaven Lin, **Narayan Sankaran**, Jing Xia, Sridhar Kalluri, & Simon Carlile (2017). Development and evaluation of a mixed gender, multi-talker matrix sentence test in Australian English. *International journal of audiology*. DOI: 10.1080/14992027.2016.1236415

[12] **Narayan Sankaran**, Johahn Leung, & Simon Carlile (2014). Effects of virtual speaker density and room reverberation on spatiotemporal thresholds of audio-visual motion coherence. *PloS one*. DOI: 10.1371/journal.pone.0108437

Published Conference Abstracts

[13] **Narayan Sankaran**, Thomas Carlson, & William Forde Thompson (2019). Decoding MEG responses to musical pitch reveals the dynamic emergence of tonal structure in human cortex. *The Journal of the Acoustical Society of America*.

[14] Yaqing Su, **Narayan Sankaran**, & Jayaganesh Swaminathan (2018). Perceptual and neural representation of consonants in hearing impaired listeners. *The Journal of the Acoustical Society of America*.

[15] **Narayan Sankaran**, James Hillis, Marina Zannoli, & Ravish Mehra (2016). Perceptual thresholds of spatial audio update latency in virtual auditory and audiovisual environments. *The Journal of the Acoustical Society of America*.

[16] **Narayan Sankaran**, Francesca Meliton, & Simon Carlile (2015). Bottom-up predictive processing of melodic stimuli. *XII International Conference on Cognitive Neuroscience*.

[17] **Narayan Sankaran**, Johahn Leung, & Simon Carlile (2013). Effects of reverberation on the spatiotemporal synchrony of moving audio-visual stimuli. *Multisensory Research*.

Selected Talks

2024 (forthcoming) *Invited Speaker,* USC Hearing & Communication Neuroscience Annual Symposium. Los Angeles, CA.

2024 *Invited Speaker,* 10th Annual NIH BRAIN Initiative Conference. Bethesda, MD.

2024 *Invited Research Talk,* Trinity College Dublin, Ireland. Virtual meeting.

2024 *Invited Research Talk,* University of Texas Medical Center, Houston, TX.

2023 *Invited Panelist,* World Congress of Science and Factual Producers. Seattle, WA.

2023 *Dana Center Neuroscience & Society Panning Meeting*. “Decoding language from the brain: the tension between speech-restoration and mental surveillance.” Virtual Meeting.

2022 *Young Investigator Keynote.* Cognition and Sensory Processing Workshop (CNSP). Virtual meeting.

2022 *Invited Speaker,* Research Club Seminar, Inserm Institut de Neurosciences des Systèmes, Aix-Marseille. Virtual meeting.

2022 *Invited Speaker,* Electronic Auditory Research Seminar Series (EARS). Virtual meeting.

2021 *Selected Early Career Spotlight Talk.* Advances and Perspectives in Auditory Neuroscience. Virtual meeting.

2019 *Invited Speaker.* The Acoustical Society of America. Louiseville, KY.

2019 *Invited Speaker.* CCRMA Hearing Seminar Series. Stanford University, CA.

2016 *Research Talk.* International Conference on Music Perception & Cognition. San Francisco, CA.

Grants and Awards

Pending *R61/R33* (Neuroethics consultant), National Institutes of health

2024 *Civic Science Fellowship,* Rita Allen Foundation

2024 *Poster Prize*, International Neuroethics Society

2021 *Early Career Travel Award,* Advances and Perspectives in Auditory Neuroscience.

2021 *Selected Early Career Panelist,* Symposium for Cognitive Auditory Neuroscience.

2020 *Berkelhammer Postdoctoral Award,* University of California San Francisco, $2000

2014 *Postgraduate Research Award*, University of Sydney, $25,000

Professional Service

Scientific Advisory Boards NeuroArts Blueprint Initiative
Implanted Brain-Computer Interface Collaborative Community

Ad-hoc Peer Reviewing	Proceedings of the National Academy of Sciences, PLOS Computational Biology, Journal of Cognitive Neuroscience, Ear and Hearing, European Journal of Neuroscience, Frontiers in Neural Systems, PLOS One, Frontiers in Neuroscience, Music Perception
Memberships	Society for Neuroscience, Society for Music Perception and Cognition, International Neuroethics Society, Berkeley Ethics and Regulation Group for Innovative Technologies

Mentoring

2022 – 2023	**Juliana Chase**, Graduate Student, University of California Berkeley
2018	**Steven Losorelli,** Medical Student, Stanford University
2014 – 2015	**Jennifer Lee,** Undergraduate Student, University of Sydney
2013 – 2014	**Francesca Meliton**, Master's Student, University of Sydney

References

Neuroscience

Edward F. Chang, *edward.chang@ucsf.edu*
Professor, University of California San Francisco

Simon Carlile, *carlile.simon@gmail.com*
Associate Professor, University of Sydney

Frederic Theunissen, *theunissen@berkeley.edu*
Professor, University of California Berkeley

Jayaganesh Swaminathan, *jayaganesh.swaminathan@eargo.com*
Director, Acoustics Engineering and Clinical Research & Development, Eargo

Neuroethics

Winston Chiong, *winston.chiong@ucsf.edu*
Associate Professor, University of California San Francisco
Director, UCSF Bioethics

Lea Witkowsky, *lwitkowsky@berkeley.edu*
Executive Director, Kavli Center for Ethics, Science, and the Public

Jodi Halpern, *jhalpern@berkeley.edu*
Professor, University of California Berkeley