

JANANI S. IYER

Harvard University
[Tearney Laboratory](#) | Wellman Center for Photomedicine | Massachusetts General Hospital
[Stankovic Laboratory](#) | Eaton-Peabody Laboratories | Massachusetts Eye and Ear
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EDUCATION

Harvard University

Graduate School of Arts and Sciences, Division of Medical Sciences
PhD candidate in Speech and Hearing Bioscience and Technology

University of California, Berkeley

Bachelor of Arts in Psychology-Cognitive Neuroscience, May 2014
Overall GPA: 3.896/4.0
Major GPA: 3.919/4.0
Phi Beta Kappa Academic Honor Society

AWARDS & HONORS

Harvard University

- Amelia Peabody Scholarship (May 2019)
- U.S. Department of Defense National Defense Science and Engineering Graduate Fellowship (April 2017)
- Bertarelli Program in Translational Neuroscience Research Travel Award (June 2016)
- Association for Research in Otolaryngology 2017 Midwinter Meeting Travel Award (December 2016)
- Publication selected for OSA Publishing "Spotlight on Optics" (September 2018)
- Honorable Mention in Association for Research in Otolaryngology Photo Contest (May 2019)
- Publication figure selected for cover of Hearing Research Volume 382, October 2019 issue

University of California, Berkeley

- Department Citation Award, Psychology (May 2014)
- Katherine Craig Swan Undergraduate Research Award and Endowment in Psychology (December 2013)
- Faculty-elected undergraduate commencement speaker, Psychology (May 2014)
- High Distinction in General Scholarship (May 2014)
- Honors in Psychology (May 2014)

RESEARCH EXPERIENCE

- *Tearney Lab, Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA*
August 2017 - present
PI: Guillermo Tearney, MD, PhD
Topic: Intracochlear imaging and surgical guidance for cochlear implantation using optical coherence tomography and micro-optical coherence tomography
Role: PhD candidate
Responsibilities: Project management, experimental design, probe design and fabrication, sample preparation, image acquisition and analysis, manuscript writing, IACUC protocol creation, management, renewal
- *Stankovic Lab, Eaton-Peabody Laboratories, Massachusetts Eye and Ear Infirmary, Boston, MA*
June 2015 - present
PI: Konstantina Stankovic, MD, PhD

Topic: Intracochlear cell imaging using micro-optical coherence tomography and two-photon fluorescence microscopy

Role: PhD candidate

Responsibilities: Project management, experimental design, animal surgery, sample preparation, data acquisition and analysis, manuscript writing, IACUC protocol creation, management, renewal

- *Hafters Auditory Perception Lab, UC Berkeley*

October 2011 - May 2012; August 2013 - June 2014

PI: Ervin Hafters, PhD

Topic: Selective auditory attention in cocktail party effect; Statistical learning of tone sequences in dyslexia (Thesis)

Role: Lab Manager, Research Assistant

Responsibilities: Stimulus preparation and data collection, IRB protocol management and renewal, participant recruitment and compensation, provided guidance for other research technicians

- *Music and Neuroimaging Lab, Beth Israel Deaconess Medical Center, Boston, MA*

May 2012 - December 2012; June 2014 - September 2014

PI: Gottfried Schlaug, MD, PhD

Advisor: Psyche Loui, PhD

Topic: White matter connectivity in tone-deafness (DTI); Perturbed auditory feedback in tone-deafness (fMRI);

Frequency learning in tone-deafness

Role: Research Assistant

Responsibilities: Programming for data collection and analysis, image pre-processing and analysis, participant recruitment and brain scanning

- *Infant Studies Center, UC Berkeley*

January 2011 - May 2012

PI: Joseph Campos, PhD

Advisor: Eric Walle, PhD

Topic: Association between infant language and motor development; Infant functional affective response specificity

Role: Research Assistant

Responsibilities: Data collection and programming for preliminary analyses

PUBLICATIONS & PATENTS

Iyer, JS, Yin, B, Stankovic, KM, Tearney, GJ. (2019). Endomicroscopy of the intact human cochlea using micro-optical coherence tomography. *Nature Light: Science and Applications*, in prep.

Sahin, MI, Lewis, R, Katsumi, S, **Iyer, JS**, Landegger, LD, Stankovic, KM. (2019). Intracochlear perfusion of tumor necrosis factor- α induces sensorineural hearing loss and synaptic degeneration in guinea pigs. *Frontiers in Neurology*, in review.

Bommakanti, K, **Iyer, JS**, Stankovic, KM. (2019). Cochlear histopathology in human genetic hearing loss: state of the science and future prospects. *Hearing Research*, 382(107785): 1-16.

Iyer, JS, Zhu, N, Gasilov, S, Ladak, HM, Agrawal, SK, Stankovic, KM. (2018). Visualizing the cytoarchitecture of the human cochlea's sensory epithelium using synchrotron radiation phase contrast imaging. *The Registry*, 26(1): 4-6.

Iyer, JS, Zhu, N, Gasilov, S, Ladak, HM, Agrawal, SK, Stankovic, KM. (2018). Visualizing the 3D cytoarchitecture of the human cochlea in an intact temporal bone using synchrotron radiation phase contrast imaging. *Biomedical Optics Express*, 9(8): 3757-3767.

(Patent) Stankovic, K, Tearney, GJ, **Iyer, J**. Systems and methods for micro-optical coherence tomography imaging of the cochlea. US Patent Application No. 62/538491, filed 2017.

Iyer, JS, Batts, SA, Chu, KK, Sahin, MI, Leung, H, Tearney, G, Stankovic, K. (2016). Imaging the mammalian cochlea using micro-optical coherence tomography. *Scientific Reports*, 6(33288): 1-10.

Loui, P, Demorest, SM, Pfordresher, PQ & **Iyer, J**. (2015). Neurological and developmental approaches to poor pitch perception and production. *Annals of the New York Academy of Sciences*, 1337: 263-271.

CONFERENCE PRESENTATIONS & INVITED TALKS

- Iyer, JS**, Yin, B, Stankovic, KM, Tearney, GJ. Endoscopic micro-optical coherence tomography of the inner ear for diagnosis of sensorineural hearing loss. **Oral presentation** at **SPIE BIOS Photonics West**. January 2020.
- Bommakanti, K, **Iyer, JS**, Stankovic, KM. Cochlear histopathology in human genetic hearing loss: state of the science and future prospects. **Poster Presentation** at the **Combined Otolaryngology Spring Meetings**. Austin, TX. May 2019.
- Sahin, MI, Lewis, R, Katsumi, S, **Iyer, JS**, Landegger, LD, Stankovic, KM. Intracochlear perfusion of tumor necrosis factor-alpha induces sensorineural hearing loss and synaptic degeneration in guinea pigs. **Poster Presentation** at the **Association for Research in Otolaryngology** Midwinter Meeting. Baltimore, MD. February 2019.
- Iyer, JS**. *My Path to Science*. **Invited talk** at **MIT Museum Girls' Day**. Boston, MA. November 2018.
- Iyer, J.S.**, Gasilov, S., Zhu, N., Stankovic, K.M. Synchrotron radiation phase contrast imaging as an alternative to histological processing for study of the human inner ear. **Poster presentation** at the **X-Ray Microscopy Meeting**. Saskatoon, SK, Canada. August 2018.
- Iyer, J.S.**, Gasilov, S., Zhu, N., Stankovic, K.M. Synchrotron radiation phase contrast imaging as an alternative to histological processing for study of the human inner ear. **Poster presentation** at the **Association for Research in Otolaryngology** Midwinter Meeting. Baltimore, MD. February 2018.
- Iyer, J.S.**, Sharma, G., Tearney, G.J., Stankovic, K.M. Visualizing cellular markers of sensorineural hearing loss in the murine cochlea using micro-optical coherence tomography. **Oral presentation** at **SPIE BIOS Photonics West**. San Francisco, CA. January 2018.
- Sharma, G., **Iyer, J.S.**, Singh, K., Stankovic, K.M., Tearney, G.J. Micro optical coherence tomography probe for high resolution imaging of the inner ear. **Oral presentation** at **SPIE BIOS Photonics West**. San Francisco, CA. January 2018.
- Iyer, J.S.**, Batts, S.A., Chu, K.K., Sahin, M.I., Leung, H., Tearney, G.J., Stankovic, K.M. Imaging the mammalian cochlea using micro-optical coherence tomography. **Oral presentation** at the **Boston Photonics Centennial Conference**. Boston, MA. February 2017.
- Iyer, J.S.**, Batts, S.A., Chu, K.K., Sahin, M.I., Leung, H., Tearney, G.J., Stankovic, K.M. Micro-optical coherence tomography imaging of cochlear cells and nerve fibers. **Oral presentation** at the **Association for Research in Otolaryngology** Midwinter Meeting. Baltimore, MD. February 2017.
- Iyer, J.S.**, Batts, S.A., Chu, K.K., Sahin, M.I., Leung, H., Tearney, G.J., Stankovic, K.M. Micro-optical coherence tomography imaging of cochlear cells and nerve fibers. **Oral presentation** at **SPIE BIOS Photonics West**. San Francisco, CA. January 2017.
- Iyer, J.**, Loui, P., & Hafter, E. Statistical learning of tone sequences in dyslexia. **Poster presentation** at the **Cognitive Neuroscience Society** Meeting, San Francisco, CA. March 2015.
- Iyer, J.**, Loui, P., Abel, M.K., Halwani, G., & Schlaug, G. Perturbed auditory feedback and resting state functional networks in tone-deafness. **Poster presentation** at the **Cognitive Neuroscience Society** Meeting, San Francisco, April 2013 and at the California Cognitive Science Conference. Berkeley, CA. May 2013.
- Loui, P. & **Iyer, J.** Impaired learning of event frequencies in tone-deafness. **Oral presentation** at the **Northeast Music Cognition Group** Meeting. Boston, MA. November 2012.

TEACHING & MENTORSHIP

- *Teaching Fellow, Harvard University*
(Spring 2020)

Course title: Clinical Aspects of Speech and Hearing

Managing and administering course; organizing and scheduling physician guest lectures; assisting students with course material and requirements; grading final exams

- *Graduate student mentor, Harvard University*
(Ongoing)

Providing guidance to undergraduate, medical, and postdoctoral students conducting research in my laboratory (literature review and experimental design, laboratory and technical skills, academic writing)

- *Teaching Assistant, Wesleyan University*
(Fall 2014)

Course Title: Advanced Research Methods in Auditory Cognitive Neuroscience

Helped undergraduate students in study design, experiment programming, data collection and analysis

- *Course Instructor, UC Berkeley*
(Fall 2013 - Spring 2014)

Course Title: Music and the Mind

Topics: Physics and music, music and the brain, music and language, music and emotion, rhythm, timbre

- *Undergraduate student mentor, UC Berkeley*
(Spring 2013 - Spring 2014)

Informed first- and second-year students about Psychology/Neuroscience courses offerings and research opportunities

SKILLS

- Grant writing: NIH, US Department of Defense, private foundations
- Programming: MATLAB, Max/MSP, HTML, UNIX
- Neuroimaging: fMRI, DTI, EEG
- Microscopy: Optical coherence tomography, two-photon fluorescence microscopy
- Image processing/analysis: ImageJ, OsiriX, FSL, SPM, MRICron, Adobe Illustrator
- Sound analysis: Praat, Audacity, WaveSurfer
- Statistics: SPSS
- Dissection: Cochlear extraction and whole mount preparation, postauricular and ventral surgical approaches for cochlear exposure *in vivo*
- Languages: English, Tamil, French

ACTIVITIES & INTERESTS

- Admissions Committee Member - Harvard Program in Speech and Hearing Bioscience and Technology (2019-2020)
- Harvard GSAS Graduate Student Council Treasurer (2017-2019)
- Freelance pastry cook

Professional experience:

- Six weddings, three other large-scale events

Apprenticeships:

- *France*: Pâtisserie Traon, Morlaix, Bretagne
- *United States*: ArtScience Culture Lab and Café, Cambridge, MA; Petsi Pies, Somerville, MA; Tschudin Chocolates, Middletown, CT

Certificates:

- *Le Cordon Bleu, Paris*: Éclairs and Viennoiseries

- South Indian classical vocalist and dancer
- Jazz vocalist and guitarist
- Advanced soccer player