# JANANI S. IYER

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## EDUCATION

**Harvard University** — **Expected October 2020**

**PHD CANDIDATE** in Speech and Hearing Bioscience and Technology — GPA: 3.8
Dissertation: "Toward novel imaging methodologies for diagnosis of human sensorineural hearing loss"

**University of California, Berkeley** — **2010-2014**

**BACHELOR OF ARTS**, Psychology – Cognitive Neuroscience — GPA: 3.9
Thesis: "Statistical learning of tone sequences in dyslexia"

## AWARDS & HONORS

**Harvard University**

- Amelia Peabody Scholarship — **2019**
- US Department of Defense National Defense Science and Engineering Graduate Fellowship — **2017**
- Ruth L. Kirchstein Institutional National Research Service Award — **2016**
- Bertarelli Program in Translational Neuroscience Research Award — **2016**
- Association for Research in Otolaryngology Midwinter Meeting Award — **2016**
- OSA Publishing "Spotlight on Optics" — **2018**
- Honorable Mention in Association for Research in Otolaryngology Photo Contest — **2019**
- Figure selected for cover of Hearing Research Volume 382 — **2019**

**University of California, Berkeley**

- Department Citation Award, Psychology (highest achievable departmental honor) — **2014**
- Faculty-elected undergraduate commencement speaker, Psychology — **2014**
- Katherine Craig Swan Undergraduate Research Award and Endowment in Psychology — **2013**
- High Distinction in General Scholarship — **2014**
- Honors in Psychology — **2014**

## SELECT PROFESSIONAL EXPERIENCE

**PROGRAM MANAGER** — **April 2020 - present**

Mass. General Brigham (MGB) Center for COVID Innovation — Boston, MA

- Developed a program to design, validate, manufacture, and distribute novel COVID testing supplies on an accelerated timeline
- Reviewed relevant FDA Guidance Documents; wrote all regulatory documentation for integration of new supplies into MGB
- Collaborated and strategized with companies, manufacturers, the FDA, and hospitals to promote new designs for clinical use
- Managed a team of 5 engineers and scientists; liaised between designers/manufacturers and MGB Center/Incident Command
- Devised a system to organize data collected over the course of the validation study period

**LABORATORY MANAGER**, Music, Imaging, and Neural Dynamics Laboratory — **2014-2015**

Wesleyan University — Middletown, CT

- Oversaw cognitive neuroscience laboratory comprising 10+ undergraduate students (no grad students or postdocs)
- Wrote and managed IRB protocols; maintained responsibility for IRB protocol renewal
- Upheld rigorous and consistent scientific standards across the lab by training lab members in data analysis and interpretation
- Served as teaching fellow for research methods course; taught experimental design, data collection, and basic statistics
- Set up and oversaw electroencephalography lab (EEG lab); taught all students to conduct EEG experiments and analyze data
- Oversaw thesis students and guided them in managing project timelines and writing final thesis

## SELECT ACADEMIC EXPERIENCE

**DOCTORAL RESEARCHER** — **August 2016 - present**

Stankovic and Tearney Labs, Massachusetts Eye and Ear and Massachusetts General Hospital — Boston, MA

- Developed novel optical imaging methods for improved diagnosis of sensorineural hearing loss
- Planned, designed, and implemented seven scientific experiments with timelines ranging from days to months
- Oversaw teams of 2-6 individuals in carrying out all research projects
- Authored four government and industry research grants and one patent

- Conducted invited peer-review for nine academic journals
- Wrote IACUC protocols for all animal experiments
- Collaborated with Clinical Regulatory Team to complete all regulatory documentation corresponding to new invention

**RESEARCH TECHNICIAN** **2012-2014**

Hafter Auditory Perception Lab, UC Berkeley Berkeley, CA

- Developed experimental materials for study on selective attention in cocktail party effect
- Wrote and managed IRB protocols; maintained responsibility for IRB protocol renewal
- Designed, programmed, and implemented honors thesis experiments, analyzed data, and wrote manuscript

**RESEARCH TECHNICIAN** **2012-2013**

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

- Programmed online tests of musical capability; collected and analyzed diffusion tensor imaging (DTI) and functional magnetic resonance imaging (fMRI) data from patients with tone-deafness
- Recruited study participants, oversaw study sessions, scanned participants' brains using MRI technology

## SELECT LEADERSHIP

**LAB MANAGER**, Music, Imaging, and Neural Dynamics Laboratory **2014-2015**

Wesleyan University Middletown, CT

- Oversaw cognitive neuroscience laboratory comprising 10+ undergraduate students (no grad students or postdocs)
- Wrote and managed IRB protocols; maintained responsibility for IRB protocol renewal
- Upheld rigorous and consistent scientific standards across the lab by training lab members in data analysis and interpretation
- Served as teaching fellow for research methods course; taught experimental design, data collection, and basic statistics
- Set up and oversaw electroencephalography lab (EEG lab); taught all students to conduct EEG experiments and analyze data
- Oversaw thesis students and guided them in managing project timelines and writing final thesis

**TREASURER**, Harvard Graduate Student Council **2017-2019**

Graduate School of Arts and Sciences, Harvard University Cambridge, MA

- Managed $120,000 annual budget for Harvard GSAS Graduate Student Council; chaired Council's Funding Committee
- Improved efficiency of transfer of funds by transitioning all finance-related documentation from paper to online platforms
- Recommended, developed, and implemented a new system to track Council's budget and expenditures

**ADMISSIONS COMMITTEE MEMBER** **2019-2020**

Program in Speech and Hearing Bioscience and Technology, Harvard University Boston, MA

- Collaborated with 15 professors and two students in evaluating 2019-2020 applicants to the SHBT PhD program
- Interviewed and evaluated 7 candidates based on their past experience, preparation, and fit for the program

## SELECT TEACHING & MENTORSHIP

**INSTRUCTOR**, University of California, Berkeley **2013-2014**

Course title: "Music and the Mind" Berkeley, CA

- Prepared all materials and lectures for semester-long course on principles of music cognition and perception
- Oversaw group of 25-30 undergraduate students; devised written and oral assignments
- Provided in-depth feedback to students for all assignments regarding the quality of their submissions/presentations
- Invited and hosted guest lecturers on special topics in music cognition and perception

**TEACHING FELLOW** **2019-2020**

Harvard University, Massachusetts Institute of Technology, Massachusetts Eye and Ear Boston, MA

Course title: "Clinical Aspects of Speech and Hearing"

- Coordinated schedules of nine practicing surgeons and clinicians to schedule course meeting sessions
- Developed and implemented new course curriculum and format based on student feedback
- Facilitated transition of all course content to online platforms within one week of the start of the COVID-19 pandemic

**TEACHING ASSISTANT** **2014-2015**

Wesleyan University Middletown, CT

Course title: "Advanced Research Methods in Auditory Cognitive Neuroscience"

- Served as teaching fellow for research methods course; taught experimental design, data collection, and basic statistics

- Assisted 25-30 undergraduate students in experimental design and program, data collection, data analysis, and scientific writing

**GRADUATE STUDENT MENTOR** **2014-2015**

Harvard University, Massachusetts Eye and Ear Boston, MA

- Provided guidance to undergraduate, medical, engineering, and postdoctoral students conducting research in auditory neuroscience or biomedical optics
- Wrote recommendation letter for undergraduate student who was subsequently awarded NSF graduate student grant
- Edited 10+ manuscripts and research grants authored by non-native-English speakers

## PUBLICATIONS & PATENTS

**Iyer, JS**, Yin, B, Stankovic, KM, Tearney, GJ. (2020). 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. (2020). Intracochlear perfusion of tumor necrosis factor-alpha induces sensorineural hearing loss and synaptic degeneration in guinea pigs. Frontiers in Neurology, 10(1353): 1-12.

Bommakanti, K, **Iyer, JS**, Stankovic, KM. (2019). Cochlear histopathology in human genetic hearing loss: state of the science and future prospects. The Registry, 27(1): 4-10.

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, JS**, Gasilov, S, Zhu, N, Stankovic, KM. 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, JS**, Gasilov, S, Zhu, N, Stankovic, KM. 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, JS**, Sharma, G, Tearney, GJ, Stankovic, KM. 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, JS**, Singh, K, Stankovic, KM, Tearney, GJ. 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, JS**, Batts, SA, Chu, KK, Sahin, MI, Leung, H, Tearney, GJ, Stankovic, KM. Imaging the mammalian cochlea using micro-optical coherence tomography. Oral presentation at the Boston Photonics Centennial Conference. Boston, MA. February 2017.

**Iyer, JS**, Batts, SA, Chu, KK, Sahin, MI, Leung, H, Tearney, GJ, Stankovic, KM. 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, JS**, Batts, SA, Chu, KK, Sahin, MI, Leung, H, Tearney, GJ, Stankovic, KM. 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, MK, 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.

## SKILLS

- Grant writing: NIH, US Dept. of Defense, private foundations
- Inner ear anatomy and physiology
- Microscopy: Optical coherence tomography; two-photon fluorescence microscopy; confocal microscopy
- Statistics: SPSS
- Project management; problem-solving; efficient learning
- Image processing: ImageJ; OsiriX; Amira; Adobe CS; FSL; SPM; MRIcron
- Programming: Matlab; Max/MSP; HTML; UNIX
- Neuroimaging: fMRI; DTI; EEG
- Neuroimaging: fMRI; DTI; EEG
- Languages: English, French, Tamil

## ACTIVITIES & INTERESTS

- Professional pastry chef and dessert caterer
- Jazz vocalist
- South Indian classical vocalist and dancer
- Advanced soccer player