

# CURRICULUM VITAE

## Daniel A. Abrams

Clinical Associate Professor  
Stanford Cognitive and Systems Neuroscience Laboratory  
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## Research Interests

**Neural Bases of Social Communication and Language Impairments in Children with ASD** Understanding the link between speech perception, social function, and auditory-based brain measures in children with autism spectrum disorders.

**Neurobiology of Speech and Language in Children with Reading Impairments** Understanding the relationship between speech perception impairments, brain function, and phonological and reading difficulties in children with reading disorders.

**Other interests:** Speech and language function in typically developing children and adults; central auditory processing of music; single and multi-unit neurophysiology in the ascending auditory system.

## Education

**Postdoctoral Research, Dept. of Psychiatry & Behav. Sci., Stanford University.**  
Completed 2013. Advisor: Vinod Menon.

**Ph.D. in Communication Sciences and Disorders, Northwestern University.**  
Graduated 2008. Advisor: Nina Kraus. Dissertation title: "Temporal Features of Speech in the Auditory System."

**Bachelor of Fine Arts, The University of Arizona, Tucson, AZ.**  
Graduated 1994. Coursework and experience in applied acoustics, music production, and technical theater.

## Academic Appointments

2021-present	Clinical Associate Professor, Dept. of Psychiatry & Behav. Sci., Stanford University.
2018-2021	Clinical Assistant Professor, Dept. of Psychiatry & Behav. Sci., Stanford University.
2014-2018	Instructor (Research Faculty), Dept. of Psychiatry & Behav. Sci., Stanford University.

2013-2014      Basic Life Research Scientist, Dept. of Psychiatry & Behav. Sci.,  
Stanford University.

## Industry Experience

**Acoustical Engineer and Consultant, Thorburn Associates, Castro Valley, CA**  
1996-1998. Provided architects with acoustical services including sound system design, mechanical noise measurement, and recommendations for room acoustics.

**Acoustical Engineer, Renkus-Heinz Inc., Irvine, CA**  
1994-1996. Measured acoustical properties of concert and commercial loudspeakers; provided technical support for acoustical modeling software, E.A.S.E.

## Publications

Liu J, Chen L, Chang H, Rudoler J, Al-Zughoul AB, Kang JB, **Abrams DA**, Menon V. (under review). Replicable patterns of non-social and social memory impairments in children with autism and their links to hyperconnected neural circuits. *Journal of Neuroscience*.

Liu J, Chang H, **Abrams DA**, Kang JB, Chen L, Rosenberg-Lee M, Menon V. (under review). Atypical cognitive training-induced learning and brain plasticity and their relation to insistence on sameness in children with autism. *Nature Human Behaviour*.

Leipold S\*, **Abrams DA\***, Karraker S, Menon V. (in press). Aberrant emotional prosody circuitry predicts social communication impairments in children with autism. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*. \*equal contributions

**Abrams DA\***, Mistry P\*, Baker AE, Padmanabhan P, Menon V. (2022) A neurodevelopmental shift in reward circuitry from mother's to nonfamilial voices in adolescence. *Journal of Neuroscience*, 42 (20), 4164-4173. \*equal contributions

Leipold S\*, **Abrams DA\***, Karraker S, Menon V. (2022) Neural decoding of emotional prosody in voice-sensitive auditory cortex predicts social communication abilities in children. *Cerebral Cortex*. \*equal contributions

Leipold S, **Abrams DA**, Menon V. (2022). Mothers adapt their voice during children's adolescent development. *Scientific Reports*, 12, 951.

Butwick AJ, **Abrams DA**, Wong CA. (2022). Is the Current Evidence Sufficient to Dismiss an Association between Epidural Labour Analgesia and Autism Spectrum Disorder? *British Journal of Anaesthesia*, S0007-0912(21)00806-0.

**Abrams DA**, Kochalka J, Bhide S, Ryali S, Menon V. (2020). Intrinsic functional architecture of the human speech processing network. *Cortex*, 129, 41-56.

**Abrams DA**, Chen T, Odriozola P, Baker AE, Kochalka J, Phillips, J, Padmanabhan A, Menon V (2019). Impaired voice processing in reward and salience circuits predicts social communication abilities in children with autism spectrum disorder. *eLife*, 8.

Chen L\*, Wassermann D\*, **Abrams DA\***, Kochalka J, Gallardo-Diez G, Menon V (2019). The visual word form area (VWFA) is part of both language and attention circuitry. *Nature Communications*, 10. \*equal contributions

Gengoux G, **Abrams DA**, Schuck R, Millan ME, Libove R, Ardel CM, Phillips JM, Fox M, Frazier TW, Hardan AY (2019). A Pivotal Response Treatment package for children with autism spectrum disorder: An RTC. *Pediatrics*, 144 (3).

Chen L, **Abrams DA**, Rosenberg-Lee M, Iuculano T, Wakeman HN, Chen T, and Menon V (2019). Quantitative analysis of heterogeneity in academic achievement of children with high-functioning autism. *Clinical Psychological Science*, 7(2), 362-380.

Skeide MA, Evans TM, Mei EZ, **Abrams DA**, Menon V. (2018). Neural signatures of co-occurring reading and mathematical deficits. *Developmental Science*. PMID: 29920856

**Abrams DA**, Nicol T, White-Schwoch T, Hartmann M, Zecker S, Kraus N. (2017) Population responses in primary auditory cortex simultaneously represent the temporal envelope and periodicity features in natural speech. *Hearing Research*. 348, 31-43. PMID: 28216125

White-Schwoch T, Nicol T, Warrier CM, **Abrams DA**, Kraus N. (2017) Individual differences in human auditory processing: Insights from single-trial auditory midbrain activity in an animal model. *Cerebral Cortex*. 27(11), 5095–5115. PMID: 28334187

**Abrams DA**, Chen T, Odriozola P, Cheng KM, Baker AE, Padmanabhan A, Ryali S, Kochalka J, Feinstein C, Menon V (2016). Neural circuits underlying mother's voice perception predict social communication abilities in children. *Proceedings of the National Academy of Sciences of the United States of America*. 113, 6295-6300. PMID: 27185915

Uddin LQ, Supekar K, Lynch CJ, Cheng KM, Odriozola P, Barth ME, Phillips J, Feinstein C, **Abrams DA**, Menon V (2015). Brain state differentiation and behavioral inflexibility in autism. *Cerebral Cortex*, 25(12), 4740-7. PMID: 25073720

**Abrams DA**, Kraus N. (2014) Auditory pathway representation of speech sounds in humans. In: *Handbook of Clinical Audiology*, 7<sup>th</sup> edition. Katz J, Hood L, Burkard R, Medwetsky L (eds.).

**Abrams DA**, Lynch CJ, Cheng KM, Phillips J, Supekar S, Ryali S, Uddin LQ, Menon V. (2013) Underconnectivity between voice-selective cortex and reward circuitry in children with autism. *Proceedings of the National Academy of Sciences*, 110(29), 12060-12065. PMID: 23776244

**Abrams DA**, Uddin LQ, Menon V. (2013) Reply to Brock: Renewed focus on the voice and social reward in children with autism. *Proceedings of the National Academy of Sciences*, 110(42), E3974. PMID: 24278966

**Abrams DA**, Ryali S, Chen T, Chordia P, Levitin DJ, Menon V. (2013) Inter-subject synchronization of brain responses during natural music listening. *European Journal of Neuroscience*, 37(9), 1458-1469. PMID: 23578016

**Abrams DA**, Ryali S, Chen T, Menon V. (2013) Multivariate activation and connectivity patterns discriminate speech intelligibility in Wernicke's, Broca's, and Geschwind's Areas. *Cerebral Cortex*, 23(7), 1703-1714. PMID: 22693339

Ashkenazi S, Black JM, **Abrams DA**, Hoeft F, Menon V. (2013) Neurobiological underpinnings of math and reading learning disabilities. *Journal of Learning Disabilities*. PMID: 23572008

**Abrams DA**, Bhatara AK, Ryali S, Balaban E, Levitin DJ, Menon V. (2011) Decoding temporal structure in music and speech relies on shared brain resources but elicits different fine-scale spatial patterns. *Cerebral Cortex*, 21(7), 1507-1518. PMID: 21071617

Warrier CM, **Abrams DA**, Nicol TG, Kraus N. (2011) Midbrain contributions to phase encoding of stop consonants in an animal model. *Hearing Research*, 282(1-2), 108-118. PMID: 21945200

**Abrams DA**, Nicol T, Zecker S, Kraus N. (2011) A role for the paralemniscal auditory pathway in the coding of slow temporal information. *Hearing Research*, 272(1-2), 125-134. PMID: 21094680

Ryali S, Supekar K, **Abrams DA**, Menon V. (2010) Sparse logistic regression for whole brain classification of fMRI data. *NeuroImage*, 51(2), 752-64. PMID: 20188193

**Abrams DA**, Nicol T, Zecker S, Kraus N. (2010) Rapid acoustic processing in the auditory brainstem is not related to cortical asymmetry for the syllable rate of speech. *Clinical Neurophysiology*, 121(8), 1343–1350. PMID: 20378402

**Abrams DA**, Nicol T, Zecker S, Kraus N. (2009) Abnormal cortical processing of the syllable rate of speech in poor readers. *Journal of Neuroscience*, 29(24), 7686-7693. PMID: 19535580

Warrier C, Wong P, Penhune V, Zatorre R, Parrish T, **Abrams D**, Kraus N. (2009) Relating structure to function: Heschl's gyrus and acoustic processing. *Journal of Neuroscience*, 29(1), 61-69. PMID: 19129385

**Abrams D**, Kraus N. (2009) Auditory pathway representation of speech sounds in humans. In: *Handbook of Clinical Audiology*, 6<sup>th</sup> edition. Katz J, Hood L, Burkard R, Medwetsky L (eds.). pp 611-626.

**Abrams DA**, Nicol T, Zecker S, Kraus N. (2008) Right-hemisphere auditory cortex is dominant for coding syllable patterns in speech. *Journal of Neuroscience*, 28(15), 3958-3965. PMID: 18400895

Banai K, **Abrams D**, Kraus N. (2007) Speech evoked brainstem responses and sensory-based accounts of learning disability. *International Journal of Audiology*, 46(9), 524 – 532. PMID: 17828668

**Abrams DA**, Nicol T, Zecker S, Kraus N. (2006) Auditory brainstem timing predicts cerebral dominance for speech sounds. *Journal of Neuroscience*, 26(43), 11131-11137. PMID: 17065453

## Fellowships and Grants

### Awarded

**Title: Tuning into Learner Differences in Sensory vs. Integrative Experiences of the World: Crossing Boundaries of Speech and Music (PIs: McCandliss, Abrams)**

Aim: To investigate individual differences in how children's brains process sensory level details during speech and music processing and integrate this information over time to extract meaning.

Agency: Stanford Graduate School of Education Transforming Learning Accelerator

Dates: 09/01/21 – 08/31/22

Role: Principal Investigator (mPI)

**Title: Social engagement via parent training: a novel intervention for examining plasticity of social reward brain circuits in high functioning and minimally verbal children with autism (PI: Abrams)**

Aim: To investigate plasticity of voice-reward brain circuitry in children with ASD following a novel behavioral intervention that uses motivational teaching strategies and natural speech reinforcers to promote social interactions.

Agency: Anonymous donor gift

Dates: 01/01/21 – 12/31/25

Role: Principal Investigator (PI)

**Title: Speaker-listener brain synchronization during naturalistic verbal communication in children with autism and neurotypical children (PI: Abrams)**

Aim: To examine brain function in children with ASD and neurotypical children during naturalistic communication with a focus on anticipatory and integrative aspects of speech comprehension

Agency: Anonymous donor gift

Dates: 01/01/21 – 12/31/24

Role: Principal Investigator (PI)

**Title: Speaker-listener coupling and brain dynamics during naturalistic verbal communication in children with autism (mPIs: Abrams, Menon)**

Aim: To examine brain function in children with ASD during naturalistic communication with a focus on anticipatory and integrative aspects of speech comprehension

Agency: NIH/National Institute on Deafness and Other Communication

Grant Number: R21DC017950

Dates: 04/01/20 – 03/31/22

Role: Principal Investigator (mPI)

**Title: Speaker-listener coupling and brain dynamics during naturalistic verbal communication in Alzheimer's Disease (mPIs: Abrams, Menon)**

Aim: To examine brain function in individuals with Alzheimer's Disease during naturalistic communication with a focus on mnemonic, anticipatory, and integrative aspects of speech comprehension

Agency: NIH/National Institute on Deafness and Other Communication

Grant Number: R21DC017950-02S1

Dates: 04/01/20 – 03/31/22

Role: Principal Investigator (mPI)

**Title: Sex differences in voice processing systems in autism: A brain networks approach to uncover neuroprotective signatures of social function in girls (PI: Abrams)**

Aim: To examine the integrity of voice-processing brain systems in female children with ASD

Agency: Brain and Behavior Research Foundation (NARSAD)

Dates: 01/15/2019 – 01/14/2021

Role: Principal Investigator

**Title: Connectivity of voice processing brain networks in female children with autism and its link to social communication abilities (PI: Abrams)**

Aim: To examine the integrity of voice-processing brain systems in female children with ASD

Agency: Stanford Women and Sex Differences in Medicine (WSDM) Seed Grant

Dates: 10/01/2017 – 09/30/2018

Role: Principal Investigator

**Title: Longitudinal development of brain systems underlying voice processing in children with ASD (PI: Abrams)**

Aim: To examine the development of voice processing in children and adolescents with ASD

Agency: Stanford Child Health Research Institute (CHRI) Pilot Early Career Award

Dates: 02/01/2017 – 01/31/2018

Role: Principal Investigator

**Title: Decoding neural systems underlying affective prosody in children with autism (PI: Abrams)**

Aim: To examine the structural and functional brain bases of emotional speech perception in children with autism.

Agency: NIH/National Institute of Mental Health

Grant Number: 1K01MH102428-01A1

Dates: 07/01/14 - 06/30/17

Role: Principal Investigator

**Title: Decoding affective prosody and communication circuits in autism (PI: Menon)**

Aim: To examine the structural and functional brain bases of emotional speech perception in children with autism.

Agency: Simons Foundation Autism Research Initiative

Grant Number:

Dates: 07/01/14 - 06/30/17

Role: Research Scientist; Co-wrote this proposal with Dr. Menon

**Title: Decoding 'what' and 'who' in the auditory system of children with autism spectrum disorders (PI: Menon)**

Aim: To examine the neural basis of auditory information processing deficits in children with autism.

Agency: NIH/National Institute on Deafness and Other Communication Disorders

Grant Number: 1R21DC011095-01A1

Dates: 02/04/11 – 01/31/13

Role: Research Fellow; Co-wrote this proposal with Dr. Menon

**Title: Decoding temporal features of speech in the auditory system using fMRI (PI: Abrams)**

Aim: To examine brainstem and cortical decoding of two perceptually-relevant ranges of temporal modulations in speech.

Agency: NIH/National Institute on Deafness and Other Communication Disorders

Grant Number: 1F32DC010322-01A2

Dates: 07/01/10 - 06/30/12

Role: Principal Investigator

**Title: Epilepsy Training Program (PI: Huguenard)**

Aim: To examine the interrelationship between the medial and lateral temporal lobe structures using electrocorticography (ECoG) in patients with epilepsy.

Agency: NIH/National Institute of Neurological Disorders and Stroke

Grant Number: 5T32NS007280-25

Dates: 06/16/09 - 05/18/10

Role: Research Fellow

**Title: Neural Timing to Speech Sounds: Envelope Cues (PI: Kraus)**

Aim: To develop a neurophysiologic measure of speech-envelope phase-locking in the human auditory system and use this tool to examine typically-developing children and children with reading impairments.

Agency: National Organization for Hearing Research Foundation

Grant Number: 340-B208

Dates: 01/01/06 - 12/31/06

Role: Project Coordinator; Co-wrote this proposal with Dr. Kraus to fund my dissertation work

**Title: Research Training in Neuroscience (PI: Peterson)**

Aim: To examine the relationship between brainstem and cortical processing of rapid acoustic information in speech in typically-developing children and children with reading impairments.

Agency: NIH/National Institute on Deafness and Other Communication Disorders

Grant Number: 5T32DC000015-20

Dates: 06/01/02 - 05/31/03

Role: Research Fellow

**Title: University Fellowship**

Aim: To perform research on typically-developing children and children with language disorders in preparation for Predoctoral Qualifying Examination.

Agency: Northwestern University

Dates: 09/01/00 - 08/31/01

Role: Research Fellow

## **Presentations**

### **Invited Lectures and Organized Symposia**

**Abrams DA.** Voice processing brain systems: a window into communication deficits and social cognition in children with autism. Stanford Autism Update, April 2012, Stanford, CA.

**Abrams DA.** Temporal processing of speech in typically developing children and children with reading difficulties. Educational Neuroscience Seminar, March 2021, Stanford University, Stanford, CA.



**Abrams DA.** Voice processing: a window into children's social brain. Seminar for the Youth Medical Association (YMA), January 2021, Menlo Park, CA.

**Abrams DA.** Inter-subject synchronization of brain responses during natural music listening. Masterclass for Western Region of the American Music Therapy Association for Students (WRAMTAS), December 2019, Stanford, CA.

**Abrams DA.** Voice processing brain systems: a window into communication deficits and social motivation in children and adolescents with autism. August 2019, University of Pittsburgh, Pittsburgh, PA.

**Abrams DA.** Voice processing brain systems: a window into communication deficits and social motivation in children and adolescents with autism. Stanford Autism Working Group, April 2019, Stanford, CA.

**Abrams DA.** Brain systems for human voice perception in children with autism spectrum disorders. Bing Bash, January 2017, Center for Computer Research in Music and Acoustics, Stanford University, Stanford, CA.

**Abrams DA.** How brain science can help improve speech perception in children with an autism spectrum disorder. February 2016, Stanford University Phonetics and Phonology Workshop, Stanford, CA.

**Abrams DA.** Brain systems for speech perception in children with autism spectrum disorders. NCCR SYNAPSY 4th Symposium on Autism, June 2015, Geneva, Switzerland.

**Abrams DA.** How brain science can help improve speech perception in children with an autism spectrum disorder. Stanford Autism Update, April 2015, Stanford, CA.

**Abrams DA.** Brain Systems for Speech and Language in Children with Autism Spectrum Disorders. April 2015, The MIND Institute, University of California – Davis, Davis, CA.

**Abrams DA.** Brain Systems for Speech and Language in Children with Autism Spectrum Disorders. March 2015, University of Michigan, Ann Arbor, MI.

**Abrams DA.** Brain Systems for Speech and Language in Children with Autism Spectrum Disorders. February 2015, University of Washington, Seattle, WA.

**Abrams DA.** Brain Systems for Speech and Language in Children with Autism Spectrum Disorders. January 2014, Columbia University, New York.

**Abrams DA.** Cognitive Deficits: Speech and Language in Autism. 6<sup>th</sup> Annual Autism Spectrum Disorder Update, June 2013, Packard Children's Hospital, Stanford University, Stanford, CA.

**Abrams DA** and Chandrasekaran B. Short and long-term neural plasticity in the auditory brainstem. Symposium organized for Association for Research in Otolaryngology Mid-Winter Meeting, February 2013, Baltimore, MD.

**Abrams DA**, Kaneshiro B, Berger J, Menon V. Predictive coding the human auditory brainstem: implications for neural plasticity. Association for Research in Otolaryngology Mid-Winter Meeting, February 2013, Baltimore, MD.

**Abrams, DA**. Brain Systems for Speech and Language. December 2012, University of Texas – Austin, Austin, TX.

**Abrams DA**, Ryali S, Balaban E, Levitin DK, Menon V. New evidence for a fronto-parietal network in processing intelligible speech. I-Poster presentation, Human Brain Mapping Conference, June 2011, Quebec City, Canada.

**Abrams DA**, Kraus N. Cognitive-sensory interaction in the neural encoding of music and speech. Stanford Music and the Brain Symposium April 2009, SiCa Center for Arts, Stanford University, Stanford, CA.

### **Poster and Podium Presentations**

**Abrams DA**, Padmanabhan A, Baker AE, Karraker S, Menon V. Distinct neural signatures in social brain circuitry in female children with ASD, presented at The International Meeting for Autism Research, May 2019, Montreal, Quebec, Canada.

**Abrams DA**. Cross-sectional development of voice-processing brain systems in children and adolescents with autism, presented at Child Health Research Institute Symposium, November 2018, Stanford University, Stanford, CA.

**Abrams DA**, Kochalka J, Chen T, Bhide S, Evans T, Ryali S, Menon V. Intrinsic functional architecture of Wernicke's, Broca's, and Geschwind's areas of the human speech comprehension network, presented at the 6<sup>th</sup> International Conference on Auditory Cortex, September 2017, Banff, Canada.

**Abrams DA**, Kochalka J, Chen T, Bhide S, Evans T, Ryali S, Menon V. Intrinsic functional architecture of Wernicke's, Broca's, and Geschwind's areas of the human speech comprehension network, presented at the Human Brain Mapping Annual Meeting, June 2017, Vancouver, Canada.

White-Schwoch T, Nicol T, **Abrams DA**, Warrier CM, Kraus N. Phase-synchronized responses to speech in the guinea pig inferior colliculus extend past 3000 Hz, presented at the Annual MidWinter Meeting of the Association for Research in Otolaryngology, February 2017, Baltimore, MD.

Baker AE, Padmanabhan A, Odriozola P, **Abrams DA**, Menon V. Social reward and voice processing brain systems in cross sectional development, presented at Flux Congress, September 2016, St. Louis, MO.

White-Schwoch T, Nicol T, Warrier CM, **Abrams DA**, Kraus N. What makes an FFR? The uncanny resemblance between inferior colliculus activity and human scalp recordings, presented at the 2nd Frequency Following Response Workshop, May 2016, Boston University. Boston, MA.

Baker AE, Padmanabhan A, Odriozola P, **Abrams DA**, Menon V. Cross-sectional development of voice processing brain systems in autism, presented at International Meeting for Autism Research, May 2016, Baltimore, MD.

White-Schwoch T, Nicol T, Warrier CM, **Abrams DA**, Kraus N. 'Unjittering' midbrain activity boosts the representation of speech formant structure, presented at ARO MidWinter Meeting, February 2016, San Diego, CA.

**Abrams DA**, Bhide S, Chen T, Ryali S, Kochalka J, Menon V. Intrinsic connectivity of human auditory cortex: Testing the Dual-Stream model of auditory processing, presented at the Human Brain Mapping Annual Meeting, June 2015, Honolulu, HI.

**Abrams DA**, Odriozola P, Chen T, Ryali S, Kochalka J, Feinstein C, Phillips J, Menon V. Rewarding speech sounds elicit reduced nucleus accumbens and amygdala activity and connectivity in children with autism, presented at the Human Brain Mapping Annual Meeting, June 2015, Honolulu, HI.

Odriozola P, **Abrams DA**, Menon V. Pragmatic language ability is related to amygdala connectivity in children with autism, presented at the Human Brain Mapping Annual Meeting, June 2015, Honolulu, HI.

**Abrams DA**, Chen T, Odriozola P, Cheng KM, Ryali S, Menon V. Familiar speech sounds elicit reduced brain activity in the reward circuit and amygdala in children with autism, presented at the International Meeting for Autism Research, May 2015, Salt Lake City, UT.

Rosenberg-Lee M, Uddin LQ, Qin S, **Abrams DA**, Odriozola P, Phillips J, Feinstein C, Menon V. Hippocampal-parietal hyper-connectivity predicts visual-spatial abilities in children with autism, presented at International Meeting for Autism Research, May 2014, Atlanta, GA.

**Abrams DA**, Lynch CJ, Cheng KM, Phillips J, Supekar S, Ryali S, Uddin LQ, Menon V. Under-connectivity between voice-selective cortex and reward circuitry in children with autism, presented at Bay Area Autism Consortium Annual Meeting, April 2013, Palo Alto, CA.

**Abrams DA**, Ryali S, Balaban E, Levitin D, Menon V. New evidence for a fronto-parietal network in processing intelligible speech, presented at Human Brain Mapping Annual Meeting, June 2011, Quebec City, Quebec, Canada.

Ryali S, Chen T, Supekar K, **Abrams DA**, Menon V. Estimation of sparse partial correlation in fMRI data using elastic net penalty, presented at Human Brain Mapping Annual Meeting, June 2011, Quebec City, Quebec, Canada.

**Abrams DA**, Bhatara A, Ryali S, Balaban E, Levitin D, Menon V. Music and speech structure engage shared brain resources but elicit different activity patterns, presented at the 3rd International Conference on Auditory Cortex, August 2009, Madgeburg, Germany.

**Abrams DA**, Ryali S, Chordia P, Levitin D, Menon V. Neural synchrony across listeners during natural listening conditions, presented at the 3rd International Conference on Auditory Cortex, August 2009, Madgeburg, Germany.

**Abrams DA**, Bhatara A, Ryali S, Balaban E, Levitin D, Menon V. Decoding the distributed neural substrates of temporal structure in music and speech: Beyond the shared syntactic integration resource hypothesis, presented at Human Brain Mapping Annual Meeting, June 2009, San Francisco, CA.

Nicol T, **Abrams DA**, Kraus N. Low-frequency phase coherence in near- and far-field midbrain responses reveals high-frequency formant structure in consonant-vowel syllables, presented at the Mid-Winter meeting of the Association for Research in Otolaryngology, February 2009, Baltimore, MD.

**Abrams DA**, Nicol T, Zecker S, Hartmann M, Kraus N. Primary and non-primary cortical encoding of the speech envelope: Implications for neural representation and perception in humans, presented at the Mid-Winter meeting of the Association for Research in Otolaryngology, February 2007, Denver, CO.

Banai K, Musacchia G, **Abrams DA**, Skoe E, Kraus N. Biological markers of literacy: timing and magnitude measures of the speech-evoked brainstem response, presented at Cognitive Neuroscience Society Meeting, April 2006, San Francisco, CA.

**Abrams DA**, Nicol T, Kraus, N. A role for the non-primary auditory pathway in the encoding of slow temporal information: implications for speech envelope encoding, presented at the Mid-Winter meeting of the Association for Research in Otolaryngology, February 2005, New Orleans, LA.

**Abrams DA**, Nicol T, Kraus, N. Cortical responses to the temporal envelope of speech and speech-like stimuli in humans, presented at the International Conference on Auditory Cortex, August 2003, Madgeburg, Germany.

Hayes E, **Abrams DA**, Zecker S, Kraus N. Effects of training on lateral representation of speech sounds in learning-impaired children, presented at the Mid-Winter meeting of the Association for Research in Otolaryngology, February 2003, Daytona Beach, FL.

Hayes E, **Abrams DA**, Zecker S, Kraus N. Training of language impaired children: cognitive, perceptual and physiologic change, presented at American Speech and Hearing Association Technical Session, Chicago, IL, November 2003.

**Abrams DA**, Nicol TG, Kraus N. Patterns of hemispheric asymmetry in response to speech sounds in normal and learning-impaired subjects, presented at the Mid-Winter meeting of the Association for Research in Otolaryngology, St. Petersburg Beach, FL, February 2002.

## Teaching Experience

Abrams DA. Voice processing brain systems: a window into communication deficits and social cognition in children with autism. Lecture for Musical Engagement, Music 264, April 2022, Stanford University, Stanford, CA.

Topic Leader on Savant Skills in Autism Spectrum Disorders, Human Biology 164, Stanford University, October 2019-2021.

Abrams DA. Seminar on fMRI data analysis for auditory research. August 2019, Department of Communication Science and Disorders, University of Pittsburgh.

Abrams DA. Voice processing brain systems: a window into communication deficits and social motivation in children and adolescents with autism. April 2019, Postdoctoral Lecture Series, Stanford, CA.

Radio interview with Julie Motz on our autism research, Hot Tech - Cool Science, KWMR-FM, March 28, 2019.

Lecture on Autism Spectrum Disorder and Careers in Neuroscience to Cupertino High School Students, Stanford University, March 2019.

Lecture on Autism Spectrum Disorders, Human Biology 164, Stanford University, October 2018.

Lectures on Autism Spectrum Disorders and the Brain, Advanced Scientific Methods Course, Monta Vista High School, Cupertino, CA, November 2013, January 2015.

Lecture on Cognitive-sensory interaction in the neural encoding of music and speech, Psychophysics and Music Cognition course, Stanford University, March 2011.

Lecture on EEG methods, Topics in Cognition and Learning: Educational Neuroscience, Stanford University, September 2010.

Lecture on evolution of the mammalian auditory system, Biology, Psychology, and Evolution of Music in Humans course, Stanford University, January 2009.

Lecture on EEG methods, Neuroscience of Music course, Stanford University, January 2009.

Lecture on anatomy and physiology of the peripheral and central auditory systems, Neuroscience of Music course, Stanford University, January 2009.

Teacher's Assistant for Biological Foundations for Speech and Music class, Northwestern University, Nina Kraus, course instructor (Winter Quarter 2003-2005). Responsibilities included scheduling course lecturers, assembling readings, grading weekly quizzes and midterm/final exams, and answering students' questions on course material.

Lecture on plasticity of somatosensory cortex, Northwestern University, June 2002, June 2003, March 2004, March 2005, March 2006, March 2007, Feb 2008.

Lecture on hemispheric dominance, Central Auditory Physiology class, Northwestern University, May 2002.

Lab Instructor for Central Auditory Physiology class, Northwestern University, Nina Kraus, course instructor. Spring Quarter 2001, 2002. Responsibilities included preparing and giving biweekly lectures, designing lab assignments for measurement and analysis of evoked potential in humans, and test writing and grading. Anonymous reviews from students averaged a score of 5.2 out of a possible 6.

## **Mentoring Experience and Award**

Mentored a high-school senior on a brain imaging project, entitled "Deconstructing the Neural Correlates of Amplitude, Tonal, and Rhythmic Structure in Beethoven's 5th Symphony." This student was named a finalist in the 2012-13 Siemens Competition in Math, Science and Technology for this work and the Siemens Foundation recognized me for my efforts.

I have extensive experience mentoring students at all levels of education, from grade school through graduate school.

## Service

- 2021 - present Appointment and Promotions Committee for Clinician Educators, Department of Psychiatry and Behavioral Sciences, Stanford University
- February 2022 *Ad Hoc* Reviewer for NIDCD Fellowship applications (F30, F31, F32) in Voice, Speech and Language
- June 2021 *Ad Hoc* Reviewer for NIH Language and Communication (LCOM) Study Section
- January 2021 *Ad Hoc* Reviewer for the Swiss National Science Foundation
- June 2020 *Ad Hoc* Reviewer for NIH Child Psychopathology and Developmental Disabilities (CPDD) Study Section
- 2020-present Member of Well-being Advisory Committee, Department of Psychiatry and Behavioral Sciences, Stanford University
- 2020-present Member of COVID-19 Childcare Workgroup, Department of Psychiatry and Behavioral Sciences, Stanford University
- 2020-present Member of Advisory Board for Youth Medical Association (YMA), an organization to help high school students in the Bay Area pursue their interest in medicine.

Ad hoc manuscript reviewer for: *Current Biology* (July 2014), *PNAS* (November 2020; May 2015), *Nature Communications* (September 2020; October 2020), *Annals of Neurology* (August 2017), *eLife* (May 2019), *Journal of Neuroscience* (July 2012; July 2014; July 2016; June 2017), *Cerebral Cortex* (February 2012, October 2014; February 2017) *Journal of Neurophysiology* (July 2010), *Ear and Hearing* (March 2020), *Brain and Language* (March 2011), *Hearing Research* (June 2013), *Frontiers in Human Neuroscience* (June 2014), *Human Brain Mapping* (June 2019), *NeuroImage* (October 2013; January 2020; February 2022), *Neuropsychologia* (July 2018), *Neuroscience & Biobehavioral Reviews* (Sept 2013), *Journal of Speech, Language, and Hearing Research* (July 2018), *Molecular Autism* (Dec 2018); *Aperture* (September 2021).