Symposium: Neural bases of speech production, 22nd March 2019

Date:
March 22, 2019

Location:
Byers Auditorium in Genentech Hall- UCSF Mission Bay Campus

Organisers: Professor John Houde, Dept of OHNS & Professor Srikantan Nagarajan, Dept of Radiology

How does the neural circuitry of the brain create speech, and what are the constraints on this process? In the past several years, there has been exciting progress on many aspects of this topic, and at this symposium we will hear from many of the leaders in the field who are advancing it. In a full-day symposium, a series of sixteen speakers and fourteen poster presenters will show the latest findings on the neural control of speech output, how sensory feedback interacts with it, and how learning plays a role in the process.

Schedule:

8:45 am
Coffee
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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>9:00 am</td>
<td>Opening remarks</td>
<td>John F. Houde, Dept. of Otolaryngology ? Head and Neck Surgery, UCSF</td>
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<td>9:05 am</td>
<td>Xing Tian</td>
<td>Division of Arts and Sciences, New York University Shanghai, Shanghai</td>
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<td>Shanghai Key Laboratory of Brain Functional Genomics (Ministry of Ed)</td>
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<td>NYU-ECNU Institute of Brain and Cognitive Science, New York University</td>
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<td></td>
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<td>The Dynamic and Task-dependent Representational Transformation between</td>
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<td>Motor and Sensory Systems</td>
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<tr>
<td>9:23 am</td>
<td>Kristina Simonyan</td>
<td>Dept. of Otolaryngology, Harvard Medical School, Boston, MA</td>
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<td>Massachusetts Eye and Ear, Boston, MA</td>
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<td>Massachusetts General Hospital, Boston, MA</td>
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<td>Dynamic large-scale neural control of speech production [7]</td>
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<tr>
<td>9:41 am</td>
<td>Jaimie Henderson</td>
<td>Dept. of Neurosurgery, Wu Tsai Neurosciences Institute, Stanford University</td>
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<td>Neural ensemble activity in dorsal motor cortex during speech production</td>
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</table>
Coffee/Poster Session 1 (30 min)

1. Valentina Borghesani

Dept. of Neurology, UCSF, San Francisco, CA

The semantic variant of Primary Progressive Aphasia: a window into the spatiotemporal dynamics of language

2. Kamalini Ranasinghe

Dept. of Neurology, UCSF, San Francisco, CA

Neural correlates of abnormal sensorimotor integration during speaking in Alzheimer’s disease

3. Leighton Hinkley

Dept. of Radiology, UCSF, San Francisco, CA

Cortical dynamics during speech preparation in primary progressive aphasia

4. Vikram Ramanarayanan

Educational Testing Service Research & Development, San Francisco, CA

Dept. of Otolaryngology – Head and Neck Surgery, UCSF, San Francisco, CA

The FACTS model: using state estimation and task-based feedback control to model the speech motor system

Oral Session 2, chair: Inez Raharjo

Program in Bioengineering, UCSF and UC Berkeley

10:35 am

Donald Robin

Dept. of Communication Sciences and Disorders, College of Health and Human Services, University of New Hampshire

The Neural Control of Human Vocalization: Quantitative Meta-Analytic Modeling of Functional Brain Imaging Data

10:53 am

Hanjun Liu

Dept. of Rehabilitation Medicine, The First Affiliated Hospital, Sun Yat-sen University

Top-down Inhibitory Mechanisms Underlying Auditory-motor Control of Speech
11:11 am  
Roozbeh Behroozmand  
Dept. of Communication Disorders, University of South Carolina, Columbia, SC  

11:27 am  
Coffee/Poster Session 2 (30 min)

5. Karuna Subramaniam  
Dept. of Psychiatry, UCSF, San Francisco, CA  
Reality monitoring and Feedback Control of Speech Production are related through Self-Agency [16]

6. Inez Raharjo  
Program in Bioengineering, UCSF, San Francisco, CA and UC Berkeley, Berkeley, CA  
Altered Speech Responses to Transient, Unpredictable and Consistent Formant Perturbations [17]

7. Matthias Franken  
Experimental Psychology Dept., Ghent University, Ghent, Belgium  
The effect of passive sound attenuation in an altered auditory feedback paradigm [18]

Oral Session 3, chair: Caroline Niziolek, Dept. of Communication Sciences and Disorders, University of Wisconsin-Madison

12:05 pm  
Benjamin Parrell  
Dept. of Communication Sciences and Disorders, University of Wisconsin-Madison  
Previous exposure to sensory feedback noise causes a decrease in online compensation for sensory perturbations in speech [19]

12:23 pm  
Sarah Bakst  
Dept. of Communication Sciences and Disorders, University of Wisconsin-Madison  
Self-monitoring in L1 and L2: a magnetoencephalography study [20]

12:39 pm  
Lunch (1 hour)
### Oral Session 4, chair: Hardik Kothare
*Program in Bioengineering, UCSF, San Francisco, CA and UC Berkeley, Berkeley, CA*

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<th>Time</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>1:42 pm</td>
<td>Florenzia Assaneo</td>
<td>Dept. of Psychology, New York University, New York, NY</td>
<td>Spontaneous synchronization to speech reveals neural mechanisms facilitating language learning</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Virginie van Wassenhove</td>
<td>CEA, DRF/Joliot, NeuroSpin; INSERM, U992, Cognitive Neuroimaging Unit</td>
<td>Segmenting ambiguous speech</td>
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<td>2:16 pm</td>
<td><strong>Coffee/Poster Session 3 (30 min)</strong></td>
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<td>8.</td>
<td>Ayoub Daliri</td>
<td>Dept. of Speech and Hearing Science, Arizona State University, Tempe, AZ</td>
<td>Relationship between speech motor adaptation and relevance of auditory errors</td>
</tr>
<tr>
<td>9.</td>
<td>Hardik Kothare</td>
<td>Program in Bioengineering, UCSF, San Francisco, CA and UC Berkeley, Berkeley</td>
<td>Neural correlates of aberrant vocal motor control in Adductor Spasmodic</td>
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<tr>
<td>10.</td>
<td>Kevin Reilly</td>
<td>Dept. of Audiology and Speech Pathology, College of Health Professions, UT</td>
<td>Parameterization of vowel acoustics during conversational speech in healthy speakers</td>
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### Oral Session 5, chair: Valentina Borghesani
*Dept. of Neurology, UCSF, San Francisco, CA*

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<tr>
<td>2:54 pm</td>
<td>David Ostry</td>
<td>Dept. of Psychology, McGill University, Montreal, Canada</td>
<td>Somatosensory cortex participates in the consolidation of motor memory</td>
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3:12 pm

**Douglas Shiller**

*School of Speech-Language Pathology & Audiology, Université de Montréal, Montreal, Canada*

Speech adaptation to palatal perturbation: Evidence for sensorimotor reorganization across the workspace

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3:28 pm

**Coffee/Poster Session 4 (30 min)**

11. **Megan Thompson**

*Boston University, Boston, MA*

Quantitative Assessment of Cognitive Models with Neuroimaging Data

12. **Gopala Krishna Anumanchipalli**

*Dept. of Neurological Surgery, UCSF, San Francisco, CA*

Speech Synthesis from neural decoding of spoken sentences

13. **Nicole Neef**

*Department of Neuropsychology, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany*

Imagined and actual speaking disentangle involvement of motor and somatosensory cortices: Submillimeter resolution resolves the cortical organization of speech pronunciation

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**Oral Session 6, chair: Srikantan S. Nagarajan**

4:06 pm

**Daniel Lametti**

*Department of Psychology, Acadia University, Wolfville, Nova Scotia, Canada*

One-sided Interference Between Speech Production and Visuomotor Learning

4:24 pm

**Ludo Max**

*Dept. of Speech and Hearing Sciences, Dept. of Linguistics, and Dept. of Bioengineering, University of Washington, Seattle, WA*

Adapting like a Seattleite in the snow: Updates on a few aspects of sensorimotor learning
Frank Guenther

Dept. of Speech, Language & Hearing Sciences, Dept. of Biomedical Engineering, Boston University, Boston, MA

A 3-parameter model for fitting and interpreting speech sensorimotor adaptation data

Concluding remarks

Srikantan S. Nagarajan, Dept. of Radiology, Dept. of Otolaryngology, UCSF, San Francisco, CA

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