

# DAVID M. SCHNEIDER PH.D.

## Contact Information

---

4 Washington Place  
Room 773  
New York, NY 10003  
212-998-3922

david.schneider@nyu.edu  
@schneiderneuro (Twitter)  
www.schneiderlaboratory.com

## Career History

---

Assistant Professor Center for Neural Science New York University	2018 – present
Helen Hay Whitney Foundation Postdoctoral Fellow Department of Neurobiology Duke University	2012 – 2017

## Education

---

Ph.D., Neurobiology and Behavior Columbia University	2012
M.S., Biomedical Engineering University of Connecticut	2005
B.S., Electrical Engineering North Dakota State University	2003

## Fellowships and Awards

---

Burroughs Wellcome Fund Career Award at the Scientific Interface	2016
NIH Pathway to Independence Award - K99/R00 (Declined to accept BWF CASI)	2016
McKnight Foundation Allison Doupe Fellowship	2015
Helen Hay Whitney Foundation/HHMI Postdoctoral Fellowship	2014 – 2017
Titus M. Coan Prize for Excellence in Basic Research, Columbia University	2013
NIH-NRSA Predoctoral Fellowship	2010 – 2012
Gatsby Initiative in Brain Circuitry Predoctoral Fellowship	2009 – 2010

## Publications

---

A cortical filter that learns to suppress the acoustic consequences of movement  
**Schneider DM\***, Sundararajan J\*, Mooney R (*\*equal contribution*)  
*Nature*, 2018

A synaptic and circuit basis for corollary discharge in the auditory cortex  
**Schneider DM\***, Nelson A\*, Mooney R (*\*equal contribution*)  
*Nature*, 2014

A circuit for motor cortical modulation of auditory cortical activity  
Nelson A\*, **Schneider DM\***, Takatoh J, Katsuyatsu S, Wang F, Mooney R (*\*equal contribution*)  
*Journal of Neuroscience*, 2013

Sparse and background-invariant coding of vocalizations in auditory scenes

**Schneider DM**, Woolley SMN

*Neuron*, 2013

Functional circuits and anatomical distribution of response properties in the primate amygdala

Zhang W\*, **Schneider DM\***, Belova MA, Morrison, SE, Paton JJ, Salzman CD (*\*equal contribution*)

*Journal of Neuroscience*, 2013

Extra-classical tuning predicts stimulus-dependent receptive fields in auditory neurons

**Schneider DM**, Woolley SMN

*Journal of Neuroscience*, 2011

Anesthetic state modulates excitability but not spectral tuning or neural discrimination in single auditory midbrain neurons

Schumacher JW, **Schneider DM**, Woolley SMN

*Journal of Neurophysiology*, 2011

Automated auditory recognition training and testing

Gess A, **Schneider DM**, Vyas A, Woolley SMN

*Animal Behavior*, 2011

Incorporating naturalistic correlation structure improves spectrogram reconstruction from neuronal activity in the songbird auditory midbrain

Ramirez AD, Ahmadian Y, Schumacher J, **Schneider DM**, Woolley SMN, Paninski L

*Journal of Neuroscience*, 2011

Automating the design of informative sequences of sensory stimuli

Lewi J, **Schneider DM**, Woolley SMN, Paninski L

*Journal of Computational Neuroscience*, 2011

A generalized linear model for estimating spectrotemporal receptive fields from responses to natural sounds

Calabrese A, Schumacher J, **Schneider DM**, Paninski L, Woolley SMN

*PLoS One*, 2011

Discrimination of communication vocalizations by single neurons and groups of neurons in the auditory midbrain

**Schneider DM**, Woolley SMN.

*Journal of Neurophysiology*, 2010

Neuronal correlates of set-size effect in monkey lateral intraparietal area

Balan PF, Oristaglio J, **Schneider DM**, Gottlieb J

*PLoS Biology*, 2008

Integration of visuospatial and effector information during symbolically-cued limb movements in monkey lateral intraparietal area

Oristaglio J, **Schneider DM**, Balan PF, Gottlieb J

*Journal of Neuroscience*, 2006

## Reviews

---

How movement modulates hearing

Mooney R, **Schneider DM**

*Annual Reviews of Neuroscience*, 2018

Motor-related signals in the auditory system for listening and learning

**Schneider DM**, Mooney R

*Current Opinion in Neurobiology*, 2015

Task-specific computations in attentional maps

Gottlieb J, Balan PF, Oristaglio J, **Schneider DM**

*Vision Research*, 2009

### **Conference Presentations**

---

Sense2Synapse, Rockefeller University (Upcoming)	2019
Predictive Processing in the Brain, Sainsbury Wellcome Center (Upcoming)	2019
Why Does the Neocortex Have Layers and Columns?, Banbury Center	2018
Auditory Splash	2018
Gordon Research Conference on the Auditory System	2018
NYU-WIS Next Generation Workshop	2018
Cortical circuits: Functions and models of long-range connections, Cosyne workshop	2018
Advances and Perspectives in Auditory Neurophysiology, SfN Satellite Symposium	2017
Birdsong, SfN Satellite Symposium	2016
International Conference on Auditory Cortex	2014
Cosyne	2014
ARO Midwinter Meeting	2011
Eastern Auditory Retreat	2010
Advances and Perspectives in Auditory Neurophysiology, SfN Satellite Symposium	2009
2 <sup>nd</sup> International IEEE-EMBS Conference on Neural Engineering	2005

### **Seminars and Invited Lectures**

---

Flatiron Institute / Simons Foundation	2018
UC Davis	
Columbia University, Neurobiology Retreat, Alumni Lecture	
Mount Sinai Friedman Brain Institute	
Numenta	
NYU, Center for Neural Science Retreat	2017
Neuralink	
NYU, Center for Neural Science	
University of Chicago	
MIT	
Boston University	
UCSF	
Berkeley	
Northwestern University	
Janelia Research Campus	
Yale University	
Friedrich Miescher Institute	2016
Harvard / Eaton Peabody Lab	
Helen Hay Whitney Foundation, Fellows Retreat	
Johns Hopkins University	
Rockefeller University	

Princeton University  
Columbia University

Duke University, Neurobiology Retreat (2014)  
Duke University (2011)  
Janelia Farm Research Campus (2011)  
Rockefeller University (2011)  
Columbia University, Neurobiology and Behavior Retreat (2011)  
NYU, Langone Medical Center (2010)  
University of Zurich (2010)  
Columbia University, Behavioral Neuroscience Seminar (2009)  
Columbia University, Behavioral Neuroscience Seminar (2008)  
Medtronic, Inc, Summer Associate Seminar (2003)  
North Dakota State University, IEEE-EMBS Seminar (2002)

Prior to 2016

### **Trainees and Mentorship**

---

Thesis advisor:

- Brooke Holey 2018 – present
- WenXi Zhou 2018 – present

Rotation advisor:

- Megha Kori Spring 2019
- Brooke Holey Fall 2018
- Tina Voelker Spring 2018
- WenXi Zhou Spring 2018

Postdoctoral Fellows:

- Karin Morandell, PhD. 2019 – present
- Nicholas Audette, Ph.D. 2018 – present

Postdoctoral Fellows (Collaborators):

- Bin Min, Laboratory of X.J. Wang 2018 – present

Thesis committees:

- Katie Martin, Laboratory of Rob Froemke 2018 – present
- Naomi Lopez Caraballo, Laboratory of Rob Froemke 2018 – present
- Peiyuan Zhang, Laboratory of X.J. Wang 2018

### **Professional Service**

---

Ad-hoc reviewer:

- Neuron, eLife, Journal of Neuroscience, Nature Communications, PLoS Computational Biology

APAN Program Committee 2018 – 2020

SfN Hearing and Balance Social, Co-Chair 2018

Cosyne reviewer 2017

Cosyne Workshop co-organizer, “Cortical circuits in action” 2015

Cosyne Program Committee, Member 2015

Duke Neurobiology Trainee Advisory Committee, Chair 2015

ARTSy – Freely distributed MATLAB software for behavioral training and testing 2011

PostHawk – Freely distributed MATLAB software for single-electrode spike sorting 2010

Neuwrite science writing group, Member 2008 – 2010

Society for Neuroscience, Member 2005 – present

IEEE-EMBS, President of NDSU chapter	2002 – 2003
IEEE, Member	1999 – 2003

**University and Departmental Service**

---

NYU Neuroscience Postdoc Orientation Panel (Neuroscience Institute)	2018
NYU Research+ Seminar on Communicating Science (Faculty of Arts and Science)	2018
Dean’s Undergraduate Research Fellowships, Review Committee (Faculty of Arts and Science)	2017, 2018
First-year talks, Mentoring Committee (Center for Neural Science)	2017

**Public Outreach**

---

High impact Twitter abstract for Schneider et al., 2018 (Nature)	2018
- >500 likes, >275 retweets ( <a href="https://twitter.com/schneiderneuro/status/1039926603852271617">https://twitter.com/schneiderneuro/status/1039926603852271617</a> )	
- Recommended by Nature editors as an impactful way to promote science ( <a href="https://www.nature.com/articles/d41586-018-07125-2">https://www.nature.com/articles/d41586-018-07125-2</a> )	
Mimi and the Brain Podcast	2018
- Podcast with Mimi Hayes about how the brain makes sense of sounds	
- <a href="http://mimiandthebrain.buzzsprout.com/195879/809374-episode-3-perception-with-dr-david-schneider">http://mimiandthebrain.buzzsprout.com/195879/809374-episode-3-perception-with-dr-david-schneider</a>	
HTM School YouTube Channel, Numenta	2018
- Interview about cortical predictions and integrative brain function	
- <a href="https://www.youtube.com/watch?v=nsqmlivXE5Q">https://www.youtube.com/watch?v=nsqmlivXE5Q</a>	
“Everything is Hallucinated”	2018
- Original piece of science theater	
- Performed at Caveat and directed by Sarah Hughes	
- Coverage at <a href="https://danablog.org/2018/03/14/brainweek-everything-is-hallucinated/">https://danablog.org/2018/03/14/brainweek-everything-is-hallucinated/</a>	
Neurotransmissions Podcast, Max Planck Institute Florida, Guest	2016
- <a href="https://soundcloud.com/neuropodcast">https://soundcloud.com/neuropodcast</a>	
North Carolina International Science Challenge, Judge	2016
“How movement affects hearing”	2015
- Public Lecture, American Scientist	
“Stop and Listen”	2015
- UNC-TV, North Carolina Science Now	
- <a href="http://www.pbs.org/video/unc-tv-science-stop-and-listen/">http://www.pbs.org/video/unc-tv-science-stop-and-listen/</a>	

**Teaching**

---

Brain and Behavior, New York University	Starting Spring 2019
Sensory and Motor Systems, Lecturer, New York University	2018
Music and the Brain, Guest Lecturer, Duke University	2015
Communicating Science, Amgen Summer Scholars Program, Columbia University	2009 – 2011
Math and Physics Tutor, New York City	2009 – 2011
Systems Neuroscience, Guest Lecturer, Columbia University	2009
Systems Neuroscience, Recitation Leader, Columbia University	2008 – 2009

**Patents**

---

Refractory period tracking and arrhythmia detection  
Deno CD, Klepfer RN, Havel WJ, **Schneider, DM**, Splett VE  
*U.S. Patent# 7,184,832*

2007

**Predoctoral Research**

---

Research Assistant with Dr. Jackie Gottlieb, Columbia University	2005 – 2006
Research Assistant with Dr. Vince Calhoun, Olin Neuropsychiatry Research Center	2004 – 2005
Graduate Research Fellow with Dr. Duck Kim, University of Connecticut	2003 – 2005
Summer Research Intern with Dr. Curt Deno, Medtronic	2002 – 2003
Research Assistant with Dr. Mark Schroeder, North Dakota State University	2002 – 2003