

# 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
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

---

New York Stem Cell Foundation Robertson Neuroscience Investigator	2021 – 2025
Alfred P. Sloan Foundation Fellow	2021 – 2022
Searle Scholar	2019 – 2021
Burroughs Wellcome Fund Career Award at the Scientific Interface	2016 – 2021
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
NRSA Predoctoral Fellowship (NIDCD)	2010 – 2012
Gatsby Initiative in Brain Circuitry Predoctoral Fellowship	2009 – 2010

## Publications

---

Reflections of action in sensory cortex

**Schneider DM**

*Current Opinion in Neurobiology*, 2020

A cortical filter that learns to suppress the acoustic consequences of movement

**Schneider DM\***, Sundararajan J\*, Mooney R (\*equal contribution)

*Nature*, 2018

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

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

Sparse and background-invariant coding of vocalizations in auditory scenes  
**Schneider DM**, Woolley SMN  
*Neuron*, 2013

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

Designing neurophysiology experiments to optimally constrain receptive field models along parametric submanifolds

Lewi J, Butera R, **Schneider DM**, Woolley SMN, Paninski L  
*Advances in Neural Information Processing Systems (NIPS)*, 2009

Task-specific computations in attentional maps  
Gottlieb J, Balan PF, Oristaglio J, **Schneider DM**  
*Vision Research*, 2009

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

### **Conference Abstracts (by trainees)**

---

Neural activity in mouse auditory cortex is influenced by context, behavior, and expectation

Audette N, Schneider DM  
*Society for Neuroscience Annual Meeting*, 2019  
*Advances and Perspectives in Auditory Neurophysiology, SfN Satellite Symposium*, 2019

Rapid pupil dilations accompany unexpected self-generated sounds in mice

Ansari H, Zhou W, Kori M, Schneider DM  
*Advances and Perspectives in Auditory Neurophysiology, SfN Satellite Symposium*, 2019

### **Conference Talks**

---

Eastern Auditory Retreat	2020
Neural Mechanisms of Acoustic Communication, Gordon Research Conference (*rescheduled)	2020
Processing and Modulation of Sensory Signals, The Physiological Society (*canceled, COVID-19)	2020
Association for Research in Otolaryngology, Midwinter Meeting	2020
Sense2Synapse	2019
Predictive Processing in the Brain, Sainsbury Wellcome Center	2019
Why Does the Neocortex Have Layers and Columns?, Banbury Center	2018
Auditory Splash	2018
The Auditory System, Gordon Research Conference	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
Association for Research in Otolaryngology, 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

---

Cold Spring Harbor Laboratories (*canceled, COVID-19)	2020
Max Plank Florida Institute (Postdoc-invited speaker) Penn State University NYU, Neuroscience Institute Retreat	2019
Flatiron Institute / Simons Foundation UC Davis Columbia University, Neurobiology Retreat, Alumni Lecture Mount Sinai Friedman Brain Institute Numenta	2018
NYU, Center for Neural Science Retreat Neuralink NYU, Center for Neural Science University of Chicago MIT Boston University UCSF Berkeley Northwestern University Janelia Research Campus Yale University	2017
Friedrich Miescher Institute Harvard / Eaton Peabody Lab Helen Hay Whitney Foundation, Fellows Retreat Johns Hopkins University Rockefeller University Princeton University Columbia University	2016
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

## Mentorship

---

Postdoctoral Fellows trained in the lab:	
- Alessandro La Chioma, Ph.D.	2020 – present
- Karin Morandell, Ph.D.	2019 – present
- Nicholas Audette, Ph.D.	2018 – present

Graduate Students trained in the lab:

- Ralph Peterson (co-advised with Dan Sanes) 2020 – present
- Brooke Holey 2018 – present
- WenXi Zhou 2018 – present

Graduate Students rotating through the lab:

- Ralph Peterson Fall 2019
- Lauren Ryan Summer 2019
- Megha Kori Spring 2019
- Brooke Holey Fall 2018
- Tina Voelker Spring 2018
- WenXi Zhou Spring 2018

Undergraduate Students trained in the lab:

- Athena Capo-Battaglia (undergraduate from Harvard) Fall 2020
- Pedro Estrada (SURP student from Tulane) Summer 2020

PhD Thesis Committees:

- Hao Zhu, Tian Lab (NYU Shanghai) 2021 – present
- Habon Issa, Froemke Lab 2020 – present
- Klavdia Zemlianova, Rinzel Lab 2020 – present
- Shannon Schiereck, Constantinople Lab 2020 – present
- Katie Martin, Froemke Lab 2018 – present
- Naomi Lopez Caraballo, Froemke Lb 2018 – present
- Peiyuan Zhang, Wang Lab 2018

PhD Thesis External Reader

- Kameron Clayton, Polley Lab (Harvard/MIT) 2020

Postdoctoral Mentoring Committees:

- Jean-Paul Noel, Angelaki Lab 2021 – present
- Carla Golden, Constantinople Lab 2021 – present
- Christina May, Nagel Lab 2020 – present
- Ipshita Zutshi, Buzsaki Lab 2020 – present

---

**Teaching**

As Faculty:

- Brain and Behavior, Instructor, New York University 2019 – present
- Sensory and Motor Systems, Lecturer, New York University 2018

As Postdoc and Graduate Student:

- Music and the Brain, Guest Lecturer, Duke University 2015
- Communicating Science, Instructor, Amgen Scholars Program at 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

---

**Professional Service**

Ad-hoc reviewer:

- Neuron, eLife, Journal of Neuroscience, Nature Communications, Current Biology
- PLoS Computational Biology, Science Advances, Scientific Reports, Cell Reports

Israel Science Foundation, Grant Reviewer	2020
APAN Program Committee	2018 – 2020
SfN Hearing and Balance Social, Co-Chair	2018
Cosyne reviewer	2017, 2020
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 Planning Committee, Faculty Organizer (CNS + NI)	2019 – present
Neuroscience Seminar Series, Co-organizer (Center for Neural Science)	2020-2021
Faculty Search Committee, Member (Center for Neural Science)	2020
NYU Neuroscience Postdoc Academic Career Panel (Neuroscience Institute)	2019
Neuroscience Faculty Lunch, Organizer (Center for Neural Science)	2019-2020
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

### Intellectual Property

---

Refractory period tracking and arrhythmia detection Deno CD, Klepfer RN, Havel WJ, <b>Schneider, DM</b> , Splett VE <i>U.S. Patent# 7,184,832</i>	2007
---	------

### Press and Public Outreach

---

Neurotransmissions Podcast, Max Planck Institute Florida, Guest - (link to be posted shortly)	2019
Growing Up in Science	2019
“The mouse in the video game”, by Liam Drew - Quoted in Nature news feature about how virtual reality has changed how we study the brain and interpret its activity. - <a href="https://www.nature.com/articles/d41586-019-00791-w">https://www.nature.com/articles/d41586-019-00791-w</a>	2019
Pregame your brain - Gave a public demo of sensory adaptation during science happy hour at Caveat	2019
High-impact Twitter abstract for Schneider et al., 2018 (Nature) - >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> )	2018

- Mimi and the Brain Podcast 2018
- Podcast with Mimi Hayes about how the brain makes sense of sounds
  - <http://mimiandthebrain.buzzsprout.com/195879/809374-episode-3-perception-with-dr-david-schneider>
- HTM School YouTube Channel, Numenta 2018
- Interview about cortical predictions and integrative brain function
  - <https://www.youtube.com/watch?v=nsqml1VXE5Q>
- “Everything is Hallucinated” 2018
- Original piece of science theater
  - Performed at Caveat and directed by Sarah Hughes
  - Coverage at <https://danablog.org/2018/03/14/brainweek-everything-is-hallucinated/>
- Neurotransmissions Podcast, Max Planck Institute Florida, Guest 2016
- <https://soundcloud.com/neuropodcast>
- 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
  - <http://www.pbs.org/video/unc-tv-science-stop-and-listen/>