

CURRICULUM VITAE

Kristina Denisova

September 3, 2021

CONTACT INFORMATION

Home address:

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New Professional address:

Psychology Department, Queens College, City University of New York

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TRAINING

- 08/2010-7/2013 Columbia University, College of Physicians and Surgeons,
Department of Psychiatry, Division of Child and Adolescent Psychiatry,
Postdoctoral Research Fellow NIMH T32 Fellow Pediatric Neuroimaging
(Mentor: Bradley Peterson, MD)
- 09/2007-08/2009 Rutgers University, NSF IGERT Trainee, Integrative Graduate Education,
and Research Traineeship in Perceptual Science (Mentor: Manish Singh,
PhD)

EDUCATION

- 2010 PhD, Rutgers University, Cognitive Psychology & Perceptual Science. Sponsor: Dr.
Manish Singh; Dissertation Title: "Investigation of shape representation using sensitivity
to axis and part based transformations"
Certificate, Rutgers University, Cognitive Science, (RUCCS: Rutgers University Center
for Cognitive Science)
- 2005 MS, Rutgers University, Cognitive Psychology
- 2001 BA, New York University, Psychology (Honors); English Literature (minor); magna cum
laude

ACADEMIC APPOINTMENTS

- 1/1/2014-07/01/2020 Assistant Professor of Clinical Neurobiology (in Psychiatry),
Department of Psychiatry, CUIMC, Columbia University
- 2/1/2020-current Visiting Assistant Research Professor, Biobehavioral Sciences
Department, Teachers College, Columbia University
- 08/25/2021-current Associate Professor of Psychology
Queens College, City University of New York

PROFESSIONAL EXPERIENCE

- 2009-current Judge at the North Jersey Regional Science Fair (NJRSF), Behavioral
Science category; ISEF affiliation

2/1/2020-current Visiting Assistant Research Professor, Biobehavioral Sciences
Department, Teachers College, Columbia University
08/25/2021-current Associate Professor of Psychology
Queens College, City University of New York

RESEARCH INTERESTS

- understanding how impairment of the neural systems that subserves sensation and perception, including those involving the cerebellum, may contribute to childhood neurodevelopmental disorders (with a focus on autism spectrum disorders (ASD)) using structural and functional magnetic resonance imaging (MRI) and behavioral assays
- investigating sensorimotor functioning using advanced computational techniques in toddlers who went on to receive diagnoses of ASD (vs. those receiving non-ASD diagnoses and those who are typically developing)
- investigating sensorimotor processes, including during sleep, in early life, as a key potential contributor to future atypical development
- development of neurobiologically-grounded early predictors of ASD in children
- commitment to rapid dissemination of findings, methods and analytics through Open Science data and methods sharing frameworks as well as through training and mentoring students

HONORS AND AWARDS

2019 Simons Foundation of Autism Research Initiative (SFARI) Pilot Award
2009 Graduate School Travel Award, Rutgers University
2001 U.S. President's Student Service Award
2001 Phi Beta Kappa (New York University)
2001 1st place recipient of the Psi Chi /J.P. Guilford Undergraduate Research Award
1998-2001 Scholars Program, New York University
1998 National Merit Scholarship recipient, New York State
1997 1st place NYSSMA Festival, New York State School Music Association; Piano (solo)

GRANT SUPPORT

2020-2024 NIMH R01 ("Investigating quantitative signatures of autism in toddlers"; PI: Kristina Denisova; Co-Investigator: Daniel Wolpert; Consultants: Karen Adolph, Alexandr Andoni)
2020-2021 CU-ZU-MR-2-0020 Seed MRI Grant ("Investigating sensorimotor and language acquisition circuits in infants at high and low risk for ASD using qMRI"; PI: Kristina Denisova)
2019-2021 SFARI Pilot Award on early ASD detection ("Investigating sensorimotor signatures during sleep in infants at high risk for autism"; PI: Kristina Denisova; Significant Contributors: Michael M. Myers, Rebecca Gomez).
2015-2019 Sackler Award in Developmental Psychobiology, Columbia University ("Using computational modeling to study early signs of autism"; PI: Kristina Denisova; sponsor: Michael M. Myers)
1998-2001 Dean's Undergraduate Research Grant, New York University ("Visual attention will influence how much we can see"; PI: Kristina Denisova; sponsor: Marisa Carrasco)

BIBLIOGRAPHY

*Senior author

Joint first co-author

Peer-reviewed published articles

1. **Denisova, K.** (2021). Genetic vulnerability of exposures to antenatal maternal treatments in 1-2 mo-old infants. *Infancy*.
2. Aston, S., **Denisova**[#], **K.**, Hurlbert, A., Olkkonen, M., Pearce, B., Rudd, M., Werner, A., & Xiao, B. (2020). Exploring the determinants of color perception using #thedress and its variants. *Perception*, 49, 1235-1251. doi:10.1177/0301006620963808. PMID: 33183137
^{#denotes joint First author}
3. **Denisova, K.** (2019). Failure to attune to language predicts autism in high risk infants. *Brain and Language*, 194, 109-120. doi: 10.1016/j.bandl.2019.04.002. PMID: 31133435
4. **Denisova, K.** (2019). Age attenuates noise and increases symmetry of head movements during sleep resting-state fMRI in healthy neonates, infants, and toddlers. *Infant Behavior and Development*, 57, 101317 (invited contribution: special issue on Infant Imaging). doi: 10.1016/j.infbeh.2019.03.008. PMID: 31102945
5. **Denisova, K.** (2019). Neurobiology, not artifacts: Challenges and guidelines for imaging the high risk infant. *NeuroImage*, 185, 624-640 (invited contribution: special issue Imaging Baby Brain). doi: 10.1016/j.neuroimage.2018.07.023. PMID: 30010009
6. Zhao, G., Walsh, K., Long, J., Gui, W., Weihua, **Denisova**^{*}, **K.** (2018). Reduced structural complexity of the right cerebellar cortex in male children with autism spectrum disorder. *PLoS ONE*. doi: 10.1371/journal.pone.0196964. PMID: 29995885
^{#denotes Senior author}
7. **Denisova, K.** & Zhao, G. (2017). Inflexible neurobiological signatures precede atypical development in infants at high risk for autism. *Nature Scientific Reports*, 7: 11285. doi: 10.1038/s41598-017-09028-0. PMID: 28900155
8. **Denisova, K.**, Zhao, G., Wang, Z., Goh, S., Huo, Y., & Peterson, B. (2016). Cortical interactions during the resolution of information processing demands in autism spectrum disorders. *Brain and Behavior*. doi: 10.1002/brb3.596. PMID: 28239517
9. Torres[#], E.B. & **Denisova**[#], **K.** (2016). Motor noise is rich signal in autism research and psychopharmacological treatments. *Nature Scientific Reports*, 6:37422. doi:10.1038/srep37422. PMID: 27869148
^{#denotes joint First author}
10. Zhao[#], G., **Denisova**[#], **K.**, Sehatpour, P., Long, J., Gui, W., Qiao, J., Javitt, D.C., Wang, Z. (2016). Fractal analysis of the structural complexity of subcortical gray matter structures in schizophrenia. *PLoS One*, 13, 11(5):e0155415. doi: 10.1371/journal.pone.0155415. PMID: 27176232
^{#denotes joint First author}
11. **Denisova, K.**, Feldman, J., Su, X., & Singh M. (2016) Investigation of shape representation using sensitivity to axis and part based transformations. *Vision Research*, 126: 347-61 (invited contribution: special issue on Gestalt perception). doi: 10.1016/j.visres.2015.07.004. PMID: 26325393
12. **Denisova, K.**, Kibbe, M. M., Cholewiak, S.A., & Kim, S-H. (2014). Intra- and intermanual curvature aftereffect can be obtained via tool-touch. *IEEE Transactions on Haptics*, 7(1), 61-66. doi: 10.1109/TOH.2013.63. PMID: 34845746

13. **Denisova, K.**, Singh, M., & Kowler, E. (2006). The role of part structure in the perceptual localization of a shape. *Perception*, 35(8), 1073-1087. doi: 10.1068/p5518. PMID: 17076067
14. Carrasco, M., McElree, B., **Denisova, K.**, & Giordano, A. (2003). Speed of visual processing increases with eccentricity. *Nature Neuroscience*, 6, 699-700. doi: 10.1038/nn1079. PMID: 12819786

articles under review or in various stages of submission/revision

1. Denisova, K. (in submission). "The importance of low IQ to early diagnosis of autism"
2. Denisova, K., van den Anker, J. et al. (new iteration/revision). "Drugs affect infant sleep"
3. Denisova, K. (under review). "Tractate on head movements in infant MRI"

abstracts (published)

1. Denisova, K., Wang, Z., Huo, Y., Peterson, B.S "Neural Correlates of Cognitive Flexibility in Autism Spectrum Disorders. Poster presented at the annual meeting of the Society of Biological Psychiatry, 05/17/13, San Francisco, CA [Abstract published in *Biological Psychiatry*, 73(9), Supplement 1, 221S-326S].
2. Denisova, K., Wang, Z., Huo, Y., Peterson, B.S "Neural Correlates of Congruency Sequence Effects in Autism Spectrum Disorders. Poster presented at the annual meeting of the Vision Sciences Society, 05/13/13, Naples, FL [Abstract published in *Journal of Vision*, 13(9), 833, <http://www.journalofvision.org/content/13/9/833.short>]
3. Denisova, K., Singh, M., Feldman, J., & Su, X. "Differential sensitivity to natural and unnatural shape and part transformations". Poster presented at the annual meeting of the Vision Sciences Society, 05/11, Naples, FL [Abstract published in *Journal of Vision*, 11(11), 1097, <http://www.journalofvision.org/content/11/11/1097.short>].
4. Denisova, K., Singh, M., Feldman, J., & Su, X. "Investigation of shape representation using sensitivity to axis and part based transformations". Poster presented at the annual meeting of the Vision Sciences Society, 05/12/09, Naples, FL [Abstract published in *Journal of Vision*, 9(8), 893, <http://www.journalofvision.org/content/9/8/893>].
5. Carrasco, M., McElree, B., & Denisova, K. "Transient covert attention accelerates the accrual of visual information at different eccentricities". Co-author of the talk presented at the annual meeting of the European Conference on Visual Perception, 08/27/01, 2001, Kusadasi, Turkey [Abstract published in *Perception*, 30(supplement), 39, <http://www.perceptionweb.com/ecvp01/>].

RESEARCH OUTPUT MENTIONED IN THE MEDIA

- May 24, 2019 "Do you hear what I hear? Study suggests infants with autism risk may be less able to distinguish between familiar and unfamiliar speech patterns"
<https://www.columbiapsychiatry.org/news/do-you-hear-what-i-hear>
- July 11, 2018 "Researchers probe part of brain where autism might begin"
<https://www.webmd.com/brain/autism/news/20180712/researchers-probe-autisms-origins-in-the-brain>
- July 11, 2018 "Autism spectrum disorder linked to shape of brain's cerebellum"
<https://www.columbiapsychiatry.org/news/autism-spectrum-disorder-linked-shape-brains-cerebellum>
- June 14, 2015 "The science ball where everybody wore the same dress"

<https://blogs.scientificamerican.com/illusion-chasers/the-science-ball-where-everybody-wore-the-same-dress/>

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

2012-present SOBP, Society of Biological Psychiatry, member
2010-present AACAP, American Academy of Child and Adolescent Psychiatry, member
2010-present ECVF, European Conference in Visual Perception, member
2009-present VSS, Vision Sciences Society, member
2001-present Psi Chi member

OTHER PROFESSIONAL ACTIVITIES

2010-current Initiated and carried out a humanitarian mission to Kyrgyzstan in 2010 to collect and distribute toys to children affected by ethnic conflict. Collaborative project with the US Embassy in Bishkek, Kyrgyzstan and USAID in Osh, Kyrgyzstan. I continue this project by presenting interactive science workshops at orphanages in Central Asia (in Kyrgyzstan for 1 week every summer/fall (for 2011, 2012 and 2013) and in Tajikistan (2014) and Kazakhstan (2015)). Organized and led three-day workshop “Visual illusions and your brain”, International Children’s Art Festival, National Mall, Washington, DC (May 2011).

Scientific Interviews conducted

Denisova, K. (2014). “Autism Symposiums at the 2014 meeting of Society of Biological Psychiatry”, *Society of Biological Psychiatry Newsletter*, Issue 2014 (September).
Denisova, K. (2015). “Interview with Dr. David C. van Essen of the Human Connectome Project”, *Society of Biological Psychiatry Newsletter*, Issue 2015 (February).

Invited Talks

Denisova, K. “On early detection of autism spectrum disorders”. Talk given on October 12, 2018 at the Department of Psychiatry at Columbia University.
Denisova, K. “Using head movement data from fMRI in ABIDE to study movement in ASD”. Talk given on April 7, 2016 at the Department of Psychology at Rutgers University.
Denisova, K. “The neural correlates of self-regulatory interference processing in persons with Autism Spectrum Disorders”. Talk given on July 16, 2013 at The Department of Psychology at New York University.
Denisova, K. “The neural correlates of self-regulatory interference processing in persons with Autism Spectrum Disorders”. Talk given on July 23, 2013 at the Developmental Neuroscience Division at the Department of Psychiatry at Columbia University.

Invited (By Funder) Poster Presentation

Denisova, K. “Atypical sensorimotor features during sleep in 1-2 mo-olds at familial risk for autism exposed to medications in utero”. Poster presented at the Simons Foundation for Autism Research Initiative (SFARI) Scientific Meeting on September 15, 2019 at the Simons Foundation headquarters in New York City.

ACADEMIC SERVICE

Journal Editorial Boards

2018-current Editorial Board Member and Editor at Nature's *Scientific Reports*
2019-current Associate Editor *Frontiers in Psychology: Emotion Science*

Manuscript Review

Ad Hoc Reviewer for *Journal of Child Psychology and Psychiatry*, *Nature Scientific Reports*, *Frontiers in Neurology*, *Frontiers in Psychology*, *Applied Mathematical Modelling*, *PLOS ONE*, *NeuroImage*, *Biological Psychiatry*, *Journal of Autism and Developmental Disorders*, *JAMA Network*

Grant Review

Irving Institute Study Section (Internal grant review panel at Columbia University Medical Center); Ad Hoc Reviewer: UK Research and Innovation BBRC; Leenaards Foundation (Switzerland)

TEACHING EXPERIENCE AND SUPERVISION RESPONSIBILITIES

Columbia University

2015; 2017 (Fall) Human brain dissection (1-day seminar under the auspices of the Gross Anatomy Laboratory; 7-10 attendees per session including undergraduates, graduate and medical students, and faculty)
2019; 2020 (Summer) Internship (8-10 weeks in the Denisova lab; 1-5 participants at the undergraduate and graduate level majoring in Neuroscience / STEM).

Rutgers University

2010 (Spring) Cognition Laboratory, 2 Undergraduate lab sections; 40 students
2009 (Fall) Sensation and Perception (Undergraduate lecture course); 180 students
2007 (Spring) Cognition Laboratory, Undergraduate lab section; 16 students
2005 (Summer) Introduction to Psychology, Undergraduate lecture course; 7 students
2004-2005 Cognition Laboratory, Undergraduate lab section; 20 students
2004 (Summer) Introduction to Cognitive Science, Undergraduate lecture; 8 students
2003-2004 Cognition Laboratory, Undergraduate lab section; 20 students

Student mentoring and supervision (from a total of 30 total since 2010):

Postdoctoral fellows: Guihu Zhao (2018-2019); PhD students: Guihu Zhao (2015-2018; joint supervision with Jun Long; PhD conferred 2018); Jean Ee Tang (2019-current PhD student under Peter Gordon, PhD; collaborates with the Denisova lab on our infant sleep project). Research Assistants working as co-authors on projects and papers: undergraduate (Jacob Merrin, BS (2019-2020; now a PsyD Candidate at Stanford); Julia Kagan, BA (2019); Zhichun Lin (Curriculum Practicum Training, CPT; Summer 2019-current; was undergraduate student at U Conn, BS conferred spring, 2020; now MS Candidate in Neurobiology at Northwestern University); Mia Eng-Kohn, a pre-med candidate in BS in Neuroscience at Barnard (2020-current); received a stipend to work in the Denisova lab from *Beyond Barnard*). Research Assistants working as co-authors on projects and papers: graduate (Ryan Dosumu, MD, PHD, resident at CUIMC (2019-current); Sukun Li, PhD in CS (2019-2020; now Assistant Professor in CS and Mathematics at Adelphi University); Yidan Lou, MS, MPH at Tulane (CPT; Summer 2019-2020; now a full-time epidemiologist at CDC); Akash Sundararaj, MS in CS (Summer 2020-Fall 2020; now a full-time full-stack developer); Zhixuan Fang, MS in CS (Fall-Winter

2021), now intern at Amazon; Amanda Kessler, MA in Clinical Psychology (Summer 2020-Spring 2021), now full-time research assistant at Johns Hopkins School of Medicine.