Ho Ming Chow

Communication Sciences and Disorders
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EDUCATION AND TRAINING

Postdoctoral Fellow	NIH, Bethesda, Neuroimaging, 2009-2015
Ph.D.	University of Osnabrück, Germany, Cognitive Science, 2008
M.Phil.	University of Hong Kong, Hong Kong, Ergonomics, 2000
B.Eng.	University of Hong Kong, Industrial Engineering, 1997

PROFESSIONAL EXPERIENCE

2023-Present	Associate Professor, Department of Communication Sciences and Disorders, University of Delaware, Newark, DE
2019-2023	Assistant Professor, Department of Communication Sciences and Disorders, University of Delaware, Newark, DE
2017-2019	Assistant Research Scientist, Nemours/AI DuPont Hospital for Children, Wilmington, DE
2015-2017	Research Investigator, Department of Psychiatry, University of Michigan Medical School, Ann Arbor, MI

AWARDS/RECOGNITIONS

2023-2024	NIGMS Supplements for Team Science Projects (Role: Project PI)
2022-2027	NIDCD R01 (Role: PI)
2022-present	Editorial board member, Journal of Speech, Language, Hearing Sciences (Speech section)
2021	Meritorious Poster Award, American Speech-Language-Hearing Association
2019-2020	Delaware Clinical and Translational Research Pilot Grant (Role: PI)
2019-2021	Delaware INBRE Pilot Grant (Role: co-I)
2017	Meritorious Poster Award, American Speech-Language-Hearing Association
2016	NIDCD Early Career Research (ECR) Award R21 (Role: PI)
2015	NIH Fellows Award for Research Excellence
2009-2014	NIH Visiting Fellow Award
2008	Organization for Human Brain Mapping Travel Award
2005-2008	DAAD (German Academic Exchange Service) Research Grants for Doctoral Candidates and Young Academics and Scientists
1997-1999	University of Hong Kong Postgraduate Studentship

PUBLICATIONS

33. **Chow HM**, Garnett EO, Ratner NB, Chang SE (2023). Brain activity during the preparation and production of spontaneous speech in children with persistent stuttering. NeuroImage Clinical, 38:103413.
32. **Chow HM**, Koenraads SPC, Garnett EO, Chang SE (2023). Developmental trajectories of brain morphology associated with childhood stuttering persistence and recovery. Dev Cogn Neurosci., 60: 101224.
31. Garnett OE, McAuley JD, Wieland EA, **Chow HM**, Zhu DC, Dilley LC, Chang SE (2023). Neural bases of auditory rhythm discrimination in adults who stutter. Brain and Language, 236:105219.
30. Garnett EO, **Chow HM**, Limb S, Liu Y, Chang SE (2022). Neural activity during solo and choral reading: A functional magnetic resonance imaging study of overt continuous speech production in adults who stutter. Front. Hum. Neurosci., 16:894676.
29. **Chow HM**, Li H, S Liu, Frigerio-Domingues C, Drayna D (2021). Neuroanatomical anomalies associated with rare AP4E1 mutations in people who stutter, Brain Communications, 3(4).
28. Johnson CA, Garnett EO, **Chow HM**, Spray GJ, Zhu DC, Chang SE (2021). Developmental Factors That Predict Head Movement During Resting-State Functional Magnetic Resonance Imaging in 3–7-Year-Old Stuttering and Non-stuttering Children, Frontiers in Neuroscience, 2021:1488.
27. Boley N, Patil S, Garnett EO, Li H, Chugani DC, Chang SE, **Chow HM** (2021). Association between gray matter volume variations and energy utilization in the brain: Implications for developmental stuttering, Journal of Speech, Language, and Hearing Research, 9;1-8.
26. **Chow HM**, Garnett EO, Li H, Etchell A, Sepulcre J, Drayna D., Chugani D., Chang SE. (2020). Linking lysosomal enzyme targeting genes and energy metabolism with altered gray matter volume in children with persistent stuttering. Neurobiology of Language, 1(3): 365:380
25. Benito-Aragón C, Gonzalez-Sarmiento R, Liddell T, Diez I, d'Oleire Uquillas F, Ortiz-Terán L, Bueichekú E, **Chow HM**, Chang SE, Sepulcre J. Neurofilament-lysosomal genetic intersections in the cortical network of stuttering. Prog Neurobiol. 2020 Jan;184:101718. doi: 10.1016/j.pneurobio.2019.101718. Epub 2019 Oct 24. PubMed PMID: 31669185; PubMed Central PMCID: PMC6938554.
24. Chang SE, Garnett EO, Etchell A, **Chow HM**. Functional and Neuroanatomical Bases of Developmental Stuttering: Current Insights. Neuroscientist. 2019 Dec;25(6):566-582. doi: 10.1177/1073858418803594. Epub 2018 Sep 28. PubMed PMID: 30264661; PubMed Central PMCID: PMC6486457.
23. Garnett EO, **Chow HM**, Choo AL, Chang SE. Stuttering Severity Modulates Effects of Non-invasive Brain Stimulation in Adults Who Stutter. Front Hum Neurosci. 2019;13:411. doi: 10.3389/fnhum.2019.00411. eCollection 2019. PubMed PMID: 31824276; PubMed Central PMCID: PMC6881273.
22. Song J, **Chow HM**, Nikam R, Kandula V, Choudhary AK, Li H. Reproducibility of axonal water fraction derived from the spherical mean diffusion weighted signal. Magn Reson Imaging. 2019 Nov;63:49-54. doi: 10.1016/j.mri.2019.08.024. Epub 2019 Aug 16. PubMed PMID: 31425799.

21. Garnett EO, **Chow HM**, Chang SE. Neuroanatomical Correlates of Childhood Stuttering: MRI Indices of White and Gray Matter Development That Differentiate Persistence Versus Recovery. J Speech Lang Hear Res. 2019 Aug 29;62(8S):2986-2998. doi: 10.1044/2019_JSLHR-S-CSMC7-18-0356. Epub 2019 Aug 29. PubMed PMID: 31465710; PubMed Central PMCID: PMC6813035.
20. Li H, Nikam R, Kandula V, **Chow HM**, Choudhary AK. Comparison of NODDI and spherical mean signal for measuring intra-neurite volume fraction. Magn Reson Imaging. 2019 Apr;57:151-155. doi: 10.1016/j.mri.2018.11.021. Epub 2018 Nov 26. PubMed PMID: 30496791; PubMed Central PMCID: PMC6331250.
19. Li H, **Chow HM**, Chugani DC, Chugani HT. Linking spherical mean diffusion weighted signal with intra-axonal volume fraction. Magn Reson Imaging. 2019 Apr;57:75-82. doi: 10.1016/j.mri.2018.11.006. Epub 2018 Nov 12. PubMed PMID: 30439515; PubMed Central PMCID: PMC6331230.
18. Li H, **Chow HM**, Chugani DC, Chugani HT. Minimal number of gradient directions for robust measurement of spherical mean diffusion weighted signal. Magn Reson Imaging. 2018 Dec;54:148-152. doi: 10.1016/j.mri.2018.08.020. Epub 2018 Aug 30. PubMed PMID: 30171997; PubMed Central PMCID: PMC6186434.
17. Garnett EO, **Chow HM**, Nieto-Castañón A, Tourville JA, Guenther FH, Chang SE. Anomalous morphology in left hemisphere motor and premotor cortex of children who stutter. Brain. 2018 Sep 1;141(9):2670-2684. doi: 10.1093/brain/awy199. PubMed PMID: 30084910; PubMed Central PMCID: PMC6113637.
16. Etchell A, Adhikari A, Weinberg LS, Choo AL, Garnett EO, **Chow HM**, Chang SE. A systematic literature review of sex differences in childhood language and brain development. Neuropsychologia. 2018 Jun;114:19-31. doi: 10.1016/j.neuropsychologia.2018.04.011. Epub 2018 Apr 11. PubMed PMID: 29654881; PubMed Central PMCID: PMC5988993.
15. Chang SE, Angstadt M, **Chow HM**, Etchell AC, Garnett EO, Choo AL, Kessler D, Welsh RC, Sripada C. Anomalous network architecture of the resting brain in children who stutter. J Fluency Disord. 2018 Mar;55:46-67. doi: 10.1016/j.jfludis.2017.01.002. Epub 2017 Jan 25. PubMed PMID: 28214015; PubMed Central PMCID: PMC5526749.
14. **Chow HM**, Chang SE. White matter developmental trajectories associated with persistence and recovery of childhood stuttering. Hum Brain Mapp. 2017 Jul;38(7):3345-3359. doi: 10.1002/hbm.23590. Epub 2017 Apr 8. PubMed PMID: 28390149; PubMed Central PMCID: PMC5632574.
13. Chang SE, **Chow HM**, Wieland EA, McAuley JD. Relation between functional connectivity and rhythm discrimination in children who do and do not stutter. Neuroimage Clin. 2016;12:442-50. doi: 10.1016/j.nicl.2016.08.021. eCollection 2016. PubMed PMID: 27622141; PubMed Central PMCID: PMC5008055.
12. Raza MH, Domingues CE, Webster R, Sainz E, Paris E, Rahn R, Gutierrez J, **Chow HM**, Mundorff J, Kang CS, Riaz N, Basra MA, Khan S, Riazuddin S, Moretti-Ferreira D, Braun A, Drayna D. Mucolipidosis types II and III and non-syndromic stuttering are associated with different variants in the same genes. Eur J Hum Genet. 2016 Apr;24(4):529-34. doi: 10.1038/ejhg.2015.154. Epub 2015 Jul 1. PubMed PMID: 26130485; PubMed Central PMCID: PMC4929873.

11. Liu S, Erkkinen MG, Healey ML, Xu Y, Swett KE, **Chow HM**, Braun AR. Brain activity and connectivity during poetry composition: Toward a multidimensional model of the creative process. Hum Brain Mapp. 2015 Sep;36(9):3351-72. doi: 10.1002/hbm.22849. Epub 2015 May 26. PubMed PMID: 26015271; PubMed Central PMCID: PMC4581594.
10. **Chow HM**, Mar RA, Xu Y, Liu S, Wagage S, Braun AR. Personal experience with narrated events modulates functional connectivity within visual and motor systems during story comprehension. Hum Brain Mapp. 2015 Apr;36(4):1494-505. doi: 10.1002/hbm.22718. Epub 2014 Dec 25. PubMed PMID: 25545633; PubMed Central PMCID: PMC6869386.
9. Xu Y, Tong Y, Liu S, **Chow HM**, AbdulSabur NY, Mattay GS, Braun AR. Denoising the speaking brain: toward a robust technique for correcting artifact-contaminated fMRI data under severe motion. Neuroimage. 2014 Dec;103:33-47. doi: 10.1016/j.neuroimage.2014.09.013. Epub 2014 Sep 16. PubMed PMID: 25225001; PubMed Central PMCID: PMC4312243.
8. AbdulSabur NY, Xu Y, Liu S, **Chow HM**, Baxter M, Carson J, Braun AR. Neural correlates and network connectivity underlying narrative production and comprehension: a combined fMRI and PET study. Cortex. 2014 Aug;57:107-27. doi: 10.1016/j.cortex.2014.01.017. Epub 2014 Feb 4. PubMed PMID: 24845161.
7. **Chow HM**, Mar RA, Xu Y, Liu S, Wagage S, Braun AR. Embodied comprehension of stories: interactions between language regions and modality-specific neural systems. J Cogn Neurosci. 2014 Feb;26(2):279-95. doi: 10.1162/jocn_a_00487. Epub 2013 Sep 18. PubMed PMID: 24047383.
6. **Chow HM**, Horovitz SG, Carr WS, Picchioni D, Coddington N, Fukunaga M, Xu Y, Balkin TJ, Duyn JH, Braun AR. Rhythmic alternating patterns of brain activity distinguish rapid eye movement sleep from other states of consciousness. Proc Natl Acad Sci U S A. 2013 Jun 18;110(25):10300-5. doi: 10.1073/pnas.1217691110. Epub 2013 Jun 3. PubMed PMID: 23733938; PubMed Central PMCID: PMC3690889.
5. Liu S, **Chow HM**, Xu Y, Erkkinen MG, Swett KE, Eagle MW, Rizik-Baer DA, Braun AR. Neural correlates of lyrical improvisation: an FMRI study of freestyle rap. Sci Rep. 2012;2:834. doi: 10.1038/srep00834. Epub 2012 Nov 15. PubMed PMID: 23155479; PubMed Central PMCID: PMC3498928.
4. **Chow HM**, Kaup B, Raabe M, Greenlee MW. Evidence of fronto-temporal interactions for strategic inference processes during language comprehension. Neuroimage. 2008 Apr 1;40(2):940-954. doi: 10.1016/j.neuroimage.2007.11.044. Epub 2007 Dec 8. PubMed PMID: 18201911.
3. Courtney AJ, **Chow HM**. A study of the discriminability of shape symbols by the foot. Ergonomics. 2001 Feb 20;44(3):328-38. doi: 10.1080/00140130118501. PubMed PMID: 11219763.
2. Courtney AJ, **Chow HM** (2001). Ergonomic considerations in designing tactile guide paths for the blind, *Asian Journal of Ergonomics*, 2(1), 1-11.
1. Courtney AJ, **Chow HM** (2000). A study of tile design for tactile guide pathways, *International Journal of Industrial Ergonomics*, 25, 693-698.

GRANTS AND CONTRACTS

P20GM139760 (PI: Elliott, Dawn), NIGMS 2023/02 – 2023/01
"Administrative supplements to fund team science development projects"
Role: Project PI

R01DC020157 (PI: Chow, Ho Ming), NIDCD 2022/04 – 2027/03
"Neural subtypes of developmental stuttering"

U54GM104941C (PI: Binder-Macleod, Stuart), NIGMS 2019/12 – 2020/12
"Generating articulatory movement from speech using deep neural network"
Role: Project PI

P20GM103446 (PI: Stanhope, Steven), NIGMS 2019/11 – 2021/10
"Magnetic resonance elastography in characterization of pediatric gliomas"
Role: Project co-I (Project PI: Nikam, Rahul)

R21-DC015853 (PI: Chow, Ho Ming), NIDCD 2016/09 – 2021/08
Neural markers of persistence and recovery from childhood stuttering: An fMRI study of continuous speech production

R01-DC011277 (PI: Chang, Soo-Eun), NIDCD 2016/07 – 2021/06
A longitudinal study of neural network development in children who stutter
Role: Subcontractor

R21-DC015312 (PI: Chang, Soo-Eun), NIDCD 2016/12 – 2019/11
Imaging genetics study of twins who stutter
Role: Subcontractor

1ZIADC000046 (PI: Drayna, Dennis) , NIDCD 2016/08 – 2017/08
Imaging-genetic study of developmental stuttering: A pilot study
Role: Subcontractor