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RESEARCH PROFILE

Research scientist with expertise in resting-state fMRI, large-scale lifespan datasets, network science, and multivariate modeling. Research focuses on the functional brain network organization in aging and Alzheimer's disease.

ACADEMIC APPOINTMENTS

2021- **Research Scientist** - *Wig Neuroimaging Lab,* The University of Texas at Dallas
2016 - 2021 **Postdoctoral Research Associate**, Center for Vital Longevity, The University of Texas at Dallas

EDUCATION

2010-2016 **Ph.D. in Cognition and Neuroscience**, The University of Texas at Dallas
Advisers: *Dr. Denise C. Park; Dr. Gagan Wig*
2010-2012 **M.S. in Applied Cognition and Neuroscience**, The University of Texas at Dallas
2005-2008 **B.S. in Psychology**, University of Illinois at Urbana-Champaign

RESEARCH INTERESTS & EXPERTISE

- Functional brain network organization across the lifespan, including large-scale system topology
- Environmental and psychosocial determinants of brain aging (e.g., stress, well-being)
- Individualized parcellation and multivariate network analysis
- Statistical modeling of high-dimensional neuroimaging data (mixed-effects and multivariate methods)
- Reproducible and rigorous neuroimaging analyses (data quality evaluation, cross-cohort considerations)

TEACHING EXPERIENCE

2026 **Personal and Professional Website Workshop** at The University of Texas at Dallas [link]
2024 **Guest lecturer in Cognitive Science** at The University of Texas at Dallas
2022 **Intro to Resting-state fMRI Preprocessing and Brain Network Analysis**
Center for Vital Longevity, The University of Texas at Dallas
2021 **Guest lecturer in Practical Research Computing** at The University of Texas at Dallas
2020 **Git/GitHub Workshop** at Office of Information and Technology, The University of Texas at Dallas
2019 **Git/GitHub Workshop** at Brainhack Dallas 2019 (Brainhack Global 2019)
2019 **FreeSurfer Training – FreeSurfer Overview and Editing using FreeView** at Center for Vital Longevity, The University of Texas at Dallas
2008 **Teaching Assistant and Student Supervisor –** *Girls Advocacy Project*
University of Illinois at Urbana-Champaign, Department of Psychology
Faculty Supervisor: *Dr. Nicole E Allen* | Supervisor: *Shabnam Javdani,* doctoral candidate

AWARDS & SCHOLARSHIPS

2024 4th place in PREPARE Challenge: Data for Early Prediction (Phase 1); Wig Neuroimaging Lab team.
2017 Best Dissertation Award, School of Behavioral and Brain Sciences (BBS) at UT Dallas
2015 Travel award, BBS at UT Dallas for presenting at Society for Personality and Social Psychology 2015
2013 Travel award from the BBS at UT Dallas for presenting at Society for Neuroscience
2012 Travel award from the BBS at UT Dallas for presenting at Society for Neuroscience

RESEARCH FUNDING

2017-2019 National Science Foundation (NSF)
Early-concept Grants for Exploratory Research [EAGER]
Title: Modifying human cognition using targeted non-invasive stimulation of large-scale brain networks
Role: Co-Investigator (PI: G. Wig, Ph.D.)
Amount awarded: $149,940

MANUSCRIPTS UNDER REVIEW

1. **Chan, M.Y.**, Han, L., & Wig, G.S. Systematic fMRI signal differences across cohorts alter lifespan trajectories of functional brain networks.
2. *Yu, JC., ***Chan, M.Y.**, Han, L., Dickie, E., & Abdi, H. IndivSTATIS: A multivariate approach to analyze brain network configurations with individualized parcellation. **These authors contribute to the manuscript equally*.
3. Zhang, Z., **Chan, M.Y.**, Massett, R.J., Winter-Nelson, E., Meeker, K.L., & Wig, G.S., for the Alzheimer's Disease Neuroimaging Initiative. Resting-state system segregation underlies cognitive reserve in Alzheimer's disease.
4. Konopkina, K., Buianova, I., Khakpoor, F. L., Pornprasertmanit, S., **Chan, M.** & Pat. N. Multimodal MRI prediction of cognitive functioning across the lifespan: separating between-person differences from within-person changes.

PEER-REVIEWED PUBLICATIONS

5. Winter-Nelson, E., Bergmann, E., **Chan, M. Y.**, Vill, G., Han, L., Zhang, Z., Kavushansky, A., Dolgopyat, I., Asleh, J., Whitesell, J. D., Kahn, I., & Wig, G.S. (2026). Correspondence of large-scale functional brain network decline across aging mice and humans. *Proceedings of the National Academy of Sciences USA*, 123(13) e2527522123.doi: 10.1073/pnas.2527522123
6. Park, D. C., Hennessee, J. P., Smith, E.T., **Chan, M. Y.**, Dakanali, M. Farrell, M. E., Liu, P., Lu., H, Rofsky, N., Sun, X., Tamminga, C., Moore, W., Rofsky, N., Kennedy, K. M., Rodrigue, K., & Wig, G.S. (2025). The Dallas Lifespan Brain Study: A comprehensive adult lifespan data set of brain and cognitive aging. *Nature Scientific Data*, 12: 846. doi: 10.1038/s41597-025-04847-7
7. Han, L., **Chan, M. Y.**, Agres, P. F., Winter-Nelson, E., Zhang, Z., & Wig, G. S. (2024). Measures of resting-state brain network segregation and integration vary in relation to data quantity: implications for within and between subject comparisons of functional brain network organization. *Cerebral Cortex*, 34(2). doi: 10.1093/cercor/bhad506
8. Wig, G. S., Klausner, S., **Chan, M. Y.**, Sullins, C., Rayanki, A., & Seale, M. (2024). Participant diversity is necessary to advance brain aging research. *Trends in Cognitive Sciences. 28(2)*, 92-96 doi: 10.1016/j.tics.2023.12.004
9. Zhang, Z., **Chan, M. Y.,** Han, L. Carreno, C. A., Winter-Nelson, E. Wig, G. S., ADNI. (2023). Dissociable effects of Alzheimer's Disease-related cognitive dysfunction and aging on functional brain network segregation. *Journal of Neuroscience*. doi: 10.1523/JNEUROSCI.0579-23.2023
10. Smith, E. T., Hennessee, J. P., Wig, G. S., Frank, S., Gonzalez, H., Bacci, J., **Chan, M. Y.**, …Park, D.C. (2023) Longitudinal changes in gray matter correspond to changes in cognition across the lifespan: implications for theories of cognition. *Neurobiology of Aging*. doi: 10.1016/j.neurobiolaging.2023.04.014

11. **Chan, M. Y.**, Han, L., Carreno, C. A., Zhang, Z., Rodriguez, R. M., LaRose, M., Hassenstab, J., & Wig, G. S. (2021). Long-term prognosis and educational determinants of brain network decline in older adult individuals. *Nature Aging*. doi: 10.1038/s43587-021-00125-4

12. Gau, R. …**Chan, M. Y.**, …Marinazzo, D. (2021). Brainhack: Developing a culture of open, inclusive, community-driven neuroscience. *Neuron*, 109(11), 1769-1775. doi: 10.1016/j.neuron.2021.04.001

13. Chen, X., Farrell, M. E., Rundle, M. M., **Chan, M. Y.**, Moore, W., Wig, G. S., Park, D. C. (2021). The relationship of functional hippocampal activity, amyloid deposition, and longitudinal memory decline to memory complaints in cognitively healthy older adults. *Neurobiology of Aging*, *105*, 318-326. doi: 10.1016/j.neurobiolaging.2021.04.020

14. Joseph, D. L., **Chan, M. Y.**, Heintzelman, S. J., Tay, L., Diener, E., & Scotney, V. S. (2020). The manipulation of affect: A meta-analysis of affect induction procedures. *Psychological Bulletin*. doi: 10.1037/bul0000224

15. Hou, X., Liu, P., Gu, H., **Chan, M. Y**., Li, Y., Peng, SL., Wig, G.S., Yang, Y., Park, D. C., & Lu, H. (2019). Estimation of brain functional connectivity from hypercapnia BOLD MRI data: Validation in a lifespan cohort of 170 subjects. *NeuroImage, 186*, 455-463. doi: 10.1016/j.neuroimage.2018.11.028

16. **Chan, M. Y.**, Na, J., Agres, P. A., Savalia, N. K., Park, D. C., & Wig, G. S. (2018). Socioeconomic status moderates age-related differences in brain anatomy and functional network organization across the adult lifespan. *Proceedings of the National Academy of Sciences USA, 115*(22) E5144-E5153. doi: 10.1073/pnas.1714021115

17. Han, L., Savalia, N. K., **Chan, M. Y**., Agres, P. A., Nair, A. S., & Wig, G. S. (2018). Functional parcellation of the cerebral cortex across the adult lifespan. *Cerebral Cortex*, *28*, 4403-4423. doi: 10.1093/cercor/bhy218.

18. Farrell, M. E., Chen, X., Rundle, M. M., **Chan, M. Y**., Wig, G. S., & Park, D. C. (2018). Regional amyloid accumulation and cognitive decline in initially amyloid-negative adults. *Neurology, 91*(19), e1809-e1821. doi: 10.1212/WNL.0000000000006469

19. **Chan, M. Y.**, Alhazmi, F. H., Park, D. C., Savalia, N. K., & Wig, G. S. (2017). Resting-state network topology differentiates task signals across the adult life span. *Journal of Neuroscience, 37*(10), 2734-2745. doi: 10.1523/JNEUROSCI.2406-16.2017

20. Savalia, N. K., Agres, P. F., **Chan, M. Y.**, Feczko, E. J., Kennedy, K. M., & Wig, G. S. (2017). Motion-related artifacts in structural brain images revealed with independent estimates of in-scanner head motion. *Human Brain Mapping, 38*(1), 472-492. doi: 10.1002/hbm.23397

21. Na, J., McDonough, I. M., **Chan, M. Y.**, & Park, D. C. (2016). Social-class differences in consumer choices: Working-class individuals are more sensitive to choices of others than middle-class individuals. *Personality and Social Psychology Bulletin, 42*(4), 430-443. doi: 10.1177/0146167216634043

22. Na. J., **Chan, M. Y.**, Lodi-Smith, J., & Park, D. C. (*2016*). Social-class differences in self-concept clarity and their implications for well-being. *Journal of Health Psychology, 23*(7), 951-960. doi: 10.1177/1359105316643597

23. Na, J., **Chan, M. Y.** (2016). Subjective perception of lower social-class enhances response inhibition. *Personality and Individual Differences, 90*, 242-246. doi:10.1016/j.paid.2015.11.027

24. **Chan, M. Y.**, Park, D. C., Savalia, N. K., Petersen, S. E., & Wig, G. S. (2014). Decreased segregation of brain systems across the healthy adult lifespan. *Proceedings of the National Academy of Sciences USA, 111*(46), E4997-E5006. doi: 10.1073/pnas.1415122111

25. **Chan, M. Y.**, Haber, S., Drew, L. D., & Park, D. C. (2014). Training older adults to use tablet computers: Does it enhance cognitive function? *The Gerontologist, 56*(3), 475-484. doi: 10.1093/geront/gnu057

26. Diener, E., & **Chan, M. Y.** (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being, 3*(1), 1-43. doi: 10.1111/j.1758-0854.2010.01045.x

BOOK CHAPTERS

1. Wig, G.S., **Chan, M. Y.,** Nguyen, L. T. (2024). Social determinants of brain health & brain changes across the human lifespan. (Planned for publication in Encyclopedia of the Human Brain, 2nd edition edited by Jordan Henry Grafman) Elsevier, 2024, ISBN 9780128093245.
2. Na, J., & **Chan, M. Y.** (2015). Culture, cognition, and intercultural relations. In J.E. Warnick, & D. Landis (Eds.), *Neuroscience in Intercultural Contexts, International and Cultural Psychology*. doi: 10.1007/978-1-4939-2260-4_3
3. Doole, R., **Chan, M. Y.**, & Huang CM. (2015). Intercultural relations and the perceptual brain: A cognitive neuroscience perspective. In J.E. Warnick, & D. Landis (Eds.), *Neuroscience in Intercultural Contexts, International and Cultural Psychology*. doi: 10.1007/978-1-4939-2260-4_8

SCIENTIFIC TALKS

1. Brain Science External Postdoc Seminar Series, Brown University, Providence, RI (May, 2022). Patterns of functional brain network in healthy and unhealthy aging.
2. Invited talk at Early Career Seminar Series, University of Nevada, Reno, NV (Apr, 2022). Brain Network Segregation: Socioeconomic Moderators and Behavioral Significance in Aging.
3. Invited talk at Betzel & Sporns Joint Lab NetNeuro Lecture Series (Jul, 2021). The aging functional brain network: environmental moderators & individual variability.
4. Dallas & Austin Area Memory Meeting, Waco, TX. (Aug, 2020). Educational attainment relates to longitudinal brain network decline.
5. Dallas & Austin Area Memory Meeting, Waco, TX. (Sep, 2018). Age-related brain differences are moderated by socioeconomic status: thinking beyond individual-level indicators.
6. Center for Vital Longevity Science Luncheon, University of Texas at Dallas, Dallas, TX. (Apr, 2018). Socioeconomic status moderates age-related differences in brain anatomy and functional network organization across the adult lifespan.
7. Dallas & Austin Area Memory Meeting, Austin, TX. (Sep, 2017). Socioeconomic status moderates age-related differences in brain anatomy and functional network organization across the adult lifespan.
8. Dallas & Austin Area Memory Meeting, Dallas, TX. (Aug, 2016). Age associated differences in resting-state network topology predict differences in task-evoked activity.
9. Society of Personality and Social Psychology Annual Meeting, Long Beach, CA. (Feb, 2015). The power of social contexts: Social-class, age, self-concept clarity, and well-being across adulthood.
10. Behavioral and Brain Science Brownbag, Richardson, TX. (April, 2012). Well-being and age-related cognitive decline.

POSTER PRESENTATIONS

1. **Chan, M. Y.**, Han, L., Wig, G.S. (Feb, 2025). Mapping differences in large-scale brain networks across the lifespan. Dallas Aging & Cognition Conference, Dallas, TX, USA.
2. **Chan, M. Y.**, Sullins, C., Reingle Gonzalez, J., Park, D. C., Brown, E., Wig, G.S. (Oct, 2024). Chronic stress is associated with alterations in large-scale functional brain network organization among middle-aged adult humans. Society for Neuroscience, Chicago, IL, USA.

3. Zhang, Z., **Chan, M. Y.**, Winter-Nelson, E., Wig, G. S., ADNI. (July, 2024). Functional brain network organization supports cognitive function in patients with Alzheimer's Disease-related pathological burden and brain atrophy. AAIC, Philadelphia, PA, USA.
4. **Chan, M. Y.**, Nelson, R., Winter-Nelson, E., Wig, G.S. (Sep, 2023). Reliability of network measures from resting-state fMRI events and sub-sampled timeseries. Resting State Brain Connectivity 2023, Dallas, TX, USA.
5. Winter-Nelson, E., Bergmann, E., **Chan, M. Y.**, Han, L., Kavushansky, A., Asleh, J., Li, Y., Murdy, T., Zhang, S., Harris, J. A., Febo, M., Kaczorowski, C. C., Kahn, I., Wig, G. S. (Nov, 2022). Cross-species homologies in patterns of large-scale functional brain network decline across aging mice and humans. Society for Neuroscience, San Diego, CA, USA.
6. Agres, P. F., Han, L., **Chan, M. Y.**, Nair, A. S., Carreno, C. A., & Wig, G. S. (Nov, 2022). Individualized targeting and non-invasive stimulation of functional brain networks reveals stimulation-specific impacts on resting-state functional correlations. Society for Neuroscience 2022, San Diego, CA, USA.
7. Zhang, Z, **Chan, M. Y.**, Han, L., Carreno, C. A., Winter-Nelson, E., Wig, G. S., ADNI. (Nov, 2022). Independent effects of Alzheimer's disease and aging on functional brain network organization at rest. Society for Neuroscience 2022, San Diego, CA, USA.
8. Yu, JC., **Chan, M. Y.**, Liang, H., Agres, P., & Abdi, H. (Jun, 2022). A multivariate approach to analyze brain networks with individualized parcellation. Organization for Human Brain Mapping, Glasgow, Scotland.
9. Nguyen, L. T., Carreno, C. A., Munson, M., Barua, A., Sullins, C., Lakhanpal, S., Jaiswal., Brown, E. S., Reingle-Gonzalez, J. M., Park, D. C., **Chan, M. Y.**, Wig, G. S. (May, 2022). The Midlife Brain and Environment Study: A longitudinal brain imaging study investigating the health, environment, and lifestyle factors that moderate brain and cognitive aging. Cognitive Neuroscience of Aging Symposium, Dallas, TX, USA.
10. **Chan. M. Y.,** Carreno, C. A., Zhang, Z., Rodriguez, R. M., LaRose, M., Hassenstab, J., & Wig, G. S. (Jun, 2020). Lower education is accompanied by greater longitudinal brain network decline in older adults. Organization for Human Brain Mapping, [Virtual].
11. Yu, JC., **Chan, M. Y.**, Liang, H., Agres, P., & Abdi, H. (Jun, 2020). A multivariate approach to analyze connectivity matrices with individual-specific parcellation. Organization for Human Brain Mapping, [Virtual].
12. Yu, JC., **Chan, M. Y.**, Liang, H., & Abdi, H. (Aug, 2019). A multivariate resting-state fMRI technique for subject-specific parcels and sub-networks. Semantic processing and semantic knowledge (Co-sponsored by the Center for Cognitive Neuroscience and the Neukom Institute for Computational Science), Hanover, NH, USA.
13. Liang, H., **Chan, M. Y.**, Agres, P. F., & Wig, G. S. (Jan, 2019). Assessment of resting-state brain network reliability over multiple measurements: implications for longitudinal observations. Dallas Aging & Cognition Conference, Dallas, TX, USA.
14. **Chan, M. Y.**, Na, J., Agres, P. A., Savalia, N. K., Park, D. C., & Wig, G. S. (Mar, 2018). Socioeconomic status moderates age-related differences in brain anatomy and functional network organization across the adult lifespan. Cognitive Neuroscience Society Annual Meeting, Boston, MA, USA.
15. Agres, P.F., **Chan, M.Y.**, Han, L., Savalia, N.K., Wig, G.S. (Mar, 2018). Organized patterns of cortical thinning observed across the healthy adult lifespan. Cognitive Neuroscience Society Annual Meeting, Boston, MA.
16. **Chan, M. Y.**, Savalia, N. K., Filbey, F., & Wig, G. S. (Nov, 2017). Differences in age-related desegregation of sensory systems between long-term marijuana users and controls. Society for Neuroscience Annual Meeting, Washington, DC, USA.

17. Cooper, C, Savalia, N. K., Agres, P. A., **Chan, M. Y.**, Han, L.,… Trivedi, M. (Dec, 2016). Identifying Clinically Relevant Subgroups in Major Depressive Disorder Using Resting-State Functional Connectivity: Results From the EMBARC Study. The American College of Neuropsychopharmacology Meeting, Hollywood, FL.
18. **Chan, M. Y.**, Alhazmi, F., Savalia, N. K., Park, D. C., Agres, P. F., Wig, G. S. (Nov, 2016). Age associated differences in resting-state network topology predict differences in task-evoked activity. Society for Neuroscience Annual Meeting, San Diego, CA, USA.
19. Wig. G. S., Alhazmi, F**., Chan, M. Y.**, Savalia, N. K. (Nov, 2016). Age-related differences in the organization of large-scale functional brain networks during successful memory formation. Society for Neuroscience Annual Meeting, San Diego, CA, USA.
20. Savalia, N. K., Cooper, C. M., Agres, P. F., **Chan, M. Y.**, Han, L.,...Wig, G. S. (Nov, 2016) Resting-state functional connectivity classifies patients with major depressive disorder into clinically distinct sub-groups. Society for Neuroscience Annual Meeting, San Diego, CA, USA.
21. Han, L., Savalia, N. K., **Chan, M. Y.**, Agres, P. F., Wig, G. S. (Nov, 2016). Functional parcellation of the cerebral cortex across the healthy adult lifespan using resting-state functional connectivity. Society for Neuroscience Annual Meeting, San Diego, CA.
22. **Chan, M. Y.**, Alhazmi, F., Savalia, N. K., Park, D. C., Wig, G. S. (Oct, 2015). Evidence that decreased system segregation observed across the healthy adult lifespan does not result in differences in resting-state defined system topology. Society for Neuroscience Annual Meeting, Chicago, IL, USA.
23. Dewitt, S. J., **Chan, M. Y.**, & Filbey, F. M. (Mar, 2015). Increased global efficiency and resting state functional connectivity in default mode, fronto-parietal and salience networks associated with increased harm avoidance in risk-taking adolescents. Cognitive Neuroscience Society Annual Meeting, San Francisco, CA, USA.
24. **Chan, M. Y.**, Park, D. C., Savalia, N. K., Petersen, S. E., & Wig, G. S. (Nov, 2014). Decreased segregation of brain systems across the healthy adult lifespan. Society for Neuroscience Annual Meeting, Washington, DC, USA.
25. **Chan, M. Y.**, McDonough, I. M., & Park, D. C. (Nov, 2013). A lifespan study of connectivity differences in four large-scale brain networks. Society for Neuroscience Annual Meeting, San Diego, CA, USA.
26. Haber, S., McDonough, I. M., **Chan, M. Y.**, & Park, D. C. (Apr, 2013). Sustained mental challenge can lead to long-term enhancements in cognitive and brain function. Cognitive Aging Conference. Atlanta, GA.
27. **Chan, M.Y.**, Haber, S., Drew, L. D., & Park, D. C. (Nov, 2012). Active engagement through iPad: Effects of technology adaptation as an intervention on cognitive aging. Gerontology Society of America, San Diego, CA, USA.
28. **Chan, M. Y.**, McDonough, I. M., & Park, D. C. (Oct, 2012). Functional Connectivity in the executive function network is associated with personality traits from the NEO PI-R. Neuroscience 2012; Society for Neuroscience, New Orleans, LA, USA.
29. **Chan, M. Y.**, Na., J., Lodi-Smith, J., & Park, D. C. (Apr, 2012). Well-being and age-related differences in cognitive functions: Psychological well-being can shape cognitive aging. Cognitive Aging Conference, Atlanta, GA, USA.

PROFESSIONAL MEMBERSHIP

2010-	Society for Neuroscience	2012-2013	Gerontology Society of America
2015-	Cognitive Neuroscience Society		

AD-HOC REVIEWING

Aging & Mental Health
Applied Psychology: Health and Well-Being
Behavioral Neuroscience
Biological Psychiatry
Brain and Language
Brain Connectivity
Cerebral Cortex
Communication Biology
Cortex
Developmental Cognitive Neuroscience
Human Brain Mapping
Imaging Neuroscience
Journal of Neuroscience
Journal of the International Neuropsychological Society
Network Neuroscience
Neurobiology of Aging
Neurobiology of Language
NeuroImage
Neurology
Neuropsychologia
PLOS Biology
PLOS One
Proc. of the Nat. Acad. of Sci., USA
Psychological Well-being
Psychological Science
Psychosomatic Medicine
Scientific Reports
Sociological Inquiry

ADDITIONAL SKILLS

- **Programming/Scripting Languages:** R, MATLAB, Bash, Python, MySQL, HTML
- **Neuroimaging software**: FSL, SPM, FreeSurfer, fMRIPrep/Nipype, Connectome Workbench, RABIES
- **General Software:** REDCap, Git, Microsoft Office (Word, Excel, PowerPoint)
- **Operating Systems:** Windows, Mac OS, Linux
- **Languages:** English, Cantonese, Mandarin