

Annie J. Lee, Ph.D., M.S.

Department of Neurology, Columbia University Irving Medical Center
 622 West 168th Street, PH 19-315, New York, NY 10032, USA
 Phone: (212) 305-1604
 Email: ajl2199@cumc.columbia.edu

Academic Appointments

-
- Assistant Professor of Neurological Sciences 2022-Present
 Department of Neurology, Gertrude H. Sergievsky Center,
 Taub Institute for Research on Alzheimer's Disease and the Aging Brain,
 Columbia University Irving Medical Center
 - Instructor 2019-2022
 Department of Neurology, Columbia University Irving Medical Center

Education

-
- Ph.D. Biostatistics, Department of Biostatistics, Columbia University 2013-2019
 - M.S. Biostatistics, Department of Biostatistics, Columbia University 2011-2013
 - B.S. Mathematics, Ewha Womans University, Seoul, South Korea 2005-2010
 - B.S. Statistics (Double Major), Ewha Womans University, Seoul, South Korea 2005-2010

Training

-
- Staff Scientist, Department of Neurology, Columbia University Irving Medical Center 2019-2019
 - Research Assistant, Department of Biostatistics, Columbia University 2013-2019
 - Statistical Genetics Analyst, Gertrude H. Sergievsky Center, Columbia University Medical Center 2012-2013
 - Summer Research Intern (NIH-IRTA), NICHD, NIH, Rockville, MD 2012-2012
 - Research Assistant, Department of Computational Science and Engineering, Yonsei University, Seoul, South Korea 2010-2011
 - Summer Research Intern (NSF-AGEP), Department of Statistics, Iowa State University, Ames, Iowa 2007-2007

Honors and Awards

-
- NIH/NIA K01 Mentored Research Scientist Career Development Award, 2024
 - National Alzheimer's Coordinating Center and the Alzheimer's Association, New Investigator Award, 2024
 - Junior Faculty Award, International Conference on Alzheimer's & Parkinson's Diseases and related neurological disorders (AD/PD), 2024
 - The Carol and Gene Ludwig Pilot Grant in Neurodegeneration, 2023
 - Health and Aging Brain Study-Health Disparities (HABS-HD) Award, 2023
 - ASPIRE! Peer and Near-Peer Mentoring Program Awards, 2022
 - Career MODE (Careers through Mentoring and training in Omics and Data) Program Awards, NIH/NIGMS R25 Innovative Program to Enhance Research Training, 2022
 - Skills for Health and Research Professionals (SHARP) Training Scholarship Awards, 2022
 - KASBP (Korean American Society in Biotech and Pharmaceuticals) Fellowship Award, 2021
 - Reserve and Resilience Travel Scholarship. NIA-supported Collaboratory on Research Definitions: 3rd Workshop on Research Definitions for Reserve and Resilience in Cognitive Aging and Dementia, 2021
 - ASA Korean International Statistical Society. Outstanding Student Paper Award, 2018
 - NIH/NIA F31 Individual Predoctoral Fellowship, 2016-2019

- ASA Risk Analysis Section, Honorable Mention for Student Paper Award, 2016
- NIH TL1/T32 Personalized Medicine Training Fellowship, Clinical and Translational Science Awards, 2014-2016
- KSEA (Korean-American Scientists and Engineers Association)-KUSCO Scholarship Award, 2013
- KSEA Outstanding Poster Award, 2013
- NIH/NICHD Summer student Intramural Research and Training Award (IRTA), 2012
- World Class University Scholarship Award, Yonsei University, 2010-2011
- Student Tutor Scholarship, Institute for teaching and learning, Ewha Womans University, 2009
- Dean's list (Summa cum laude), Ewha Womans University, 2008-2009
- NSF REU Alliance Graduate Education Professoriate Fellowship (AGEP), Iowa State University, 2007
- Ewha Frontier Scholarship for Global Health Research Project, Ewha Womans University, 2005

Administrative Leadership and Academic Service

ACADEMIC SERVICE

- | | |
|--|-----------------|
| • Committee Member, CUIMC Biostatistics Collaborative Model Working Group | 02/2022-Present |
| • Ph.D Representative, Biostatistics Student Cohort, Dept. of Biostatistics, Columbia University | 09/2016-05/2019 |
| • Member, Graduate Student Research Seminars (GSRS), Columbia University | 09/2016-05/2019 |
| • Member, Korean Graduate Student Association (KGSA), Columbia University | 09/2012-05/2019 |
| • Member, Korean Graduate Students for Health (KGSF), Columbia University | 09/2011-05/2019 |

Professional Organizations and Societies

MEMBERSHIPS

- Alzheimer's Association International Conference (AAIC)
- Alzheimer's & Parkinson's Diseases and related neurological disorders (AD/PD)
- American Statistical Association (ASA)
- Korean-American Scientists and Engineers Association (KSEA)

JOURNAL REVIEWER

- Nature Aging, Frontiers in Immunology, The Lancet Neurology, Frontiers in Genetics, American Journal of Preventive Medicine

Grant Support

ACTIVE

- **Principal Investigator**, "Genomic Link between Vascular Risk Factors and AD in Diverse Populations". The National Alzheimer's Coordinating Center and the Alzheimer's Association, New Investigator Award. 2024-2025.
- **Principal Investigator**, "Genetic Association Between Alzheimer's Disease and Cardio-Cerebrovascular Risk Factors". NIH/NIA, K01AG084849. 2024-2029.
- **Principal Investigator**, "Genetic Association Between Alzheimer's Disease and Cardio-Cerebrovascular Risk Factors". The Carol and Gene Ludwig Pilot Grant in Neurodegeneration. 2023-2025.
- **Principal Investigator**, "Identifying the causal mechanistic relationship of genes, cardiovascular risk factors, cerebrovascular pathology, and Alzheimer's Disease in multi-ethnic populations". Health and Aging Brain Study-Health Disparities (HABS-HD), Health Equity Scholars Program, NIH. 2023-2025.
- **Principal Investigator**, "Genetic Interaction Between Alzheimer's Disease and Cardiovascular Risk Factors". NIH/NIA Columbia ADRC REC Program. 2023-2025.
- Co-Investigator, "Statistical Methods for Integrating Mixed-type Biomarkers and Phenotypes in Neurodegenerative Disease Modeling". NINDS/NIH, R01NS073671-09. 2022-2027.

- Biostatistician, “ADSP Phenotype Harmonization Consortium”, NIH/NIA, U24AG074855. 2021-2026.
- Biostatistician, “Coordinating Center for Genetics and Genomics of Alzheimer’s Disease (CGAD)”, NIH/NIA, U54AG052427. 2021-2026.
- Biostatistician, “Characterizing complex structural variation in Alzheimer’s disease”, NIH/NIA, U01AG068028. 2020-2024.

COMPLETE

- **Principal Investigator**, “Efficient Statistical Methods for Association Studies with Dense Genotypes and Family History of Disease”. NIH/NIA, F31-AG054095. 2016-2019.
- Predoctoral Trainee, “Methods for age-specific penetrance estimate of LRRK2 mutations on the risk of Parkinson’s disease incorporating personalized characteristics”. NIH/Clinical and Translational Science Awards (CTSA), TL1-TR000082. 2014-2016, PI: Wang.

Educational Contributions

TEACHING

- **Instructor**, “Advanced Statistical and Computational Methods in Genetics and Genomics” (P8119), Department of Biostatistics, Columbia University. (3 hours per week for 15 weeks, 20 graduate students approximately), Fall 2023
- **Instructor**, “Statistical Computing with SAS” (P6110), Columbia University, The Biostatistics Epidemiology Summer Training Diversity Program (BEST) Diversity Program, REU program Funded by NIH/NHLBI (R25 HL096260-06), Summer 2017, Summer 2018.
- Teaching Assistant, “Probability” (P8104), Department of Biostatistics, Columbia University, Instructor: Dr. Prakash Gorroochurn, Fall 2015.
- Teaching Assistant, “Statistical Inference” (P8109), Dept. of Biostatistics, Columbia University, Instructor: Dr. Arindam RoyChoudhury, Spring 2015.
- Teaching Assistant, “Complex Analysis II”, Dept. of Mathematics, Ewha Womans University, Instructor: Dr. Eung Il Ko, Fall 2009.
- Teaching Assistant, “Modern Geometry”, Dept. of Mathematics, University of Northern Iowa, Instructor: Dr. Jerry R. Ridenhour, Fall 2007.
- Tutor, Department of Mathematics, University of Northern Iowa, Cedar Falls, Iowa, Spring 2007, Fall 2007.

MENTORING (The * indicates that I am the primary mentor or practicum advisor.)

Postdoctoral Research Scientists, Department of Neurology, Columbia University:

- Anisha Das* (co-mentored by Dr. Badri Varadarajan), 2025-2027.
- Boyi Hu* (co-mentored by Dr. Yuanjia Wang), 2023-2025.

Master’s Students, Department of Biostatistics, Columbia University:

- Yaduo Wang*, 2024-2025.
- Xuesen Zhao*, 2023-2024. First position: Biostatistician, Miami University
- Zuoquai Cui*, 2023-2024. First position: Doctoral student, Department of Biostatistics, Bioinformatics, and Biomathematics, Georgetown University
- Zhengwei Song*, 2023-2024.
- Tvisha Ragendri Devavarapu, 2023.

Undergraduate Students

- Danielle Savellano, Allegheny College, mentor through BEST Program, Columbia University, 2023
- Kayla Scott-McDowell, Mt. Holyoke College, mentor through BEST Program, Columbia University, 2023

High school Students

- Leah Kang, Northern Valley Regional High School, 2023
- Tessa Hunt, Dobbs Ferry High School, mentor through BrainSTORM Program at CUMC, 2024
- Tristin Yun, Tenafly High School, 2024

Consultation

- Statistical Consultation for clinical research fellows, 2015-2016

Publications**A. Original, peer-reviewed articles (In chronological order)****Substantive Area Publications:**

1. Touil H, Luquez T, Comandante-Lou N, **Lee AJ**, Fujita M, Habeck C, Kroshilina A, Hegewisch-Solloa E, McInvale J, Zuroff L, Isnard S, Walker E, Zhang L, Routy JP, Zhang Y, Mace EM, Klotz L, Wiendl H, Xia Z, Bar-Or A, Menon V, Stern Y, De Jager PL. Relation of CMV and brain atrophy to trajectories of immunosenescence in diverse populations. *bioRxiv* 2024.10.07.614568; doi: <https://doi.org/10.1101/2024.10.07.614568>
2. Gunasekaran TI, Meena D, **Lee AJ**, Wu S, Dumitrescu L, Sperling R, Hohman TJ, Alzheimer's Disease Neuroimaging Initiative and the A4 Study, Huang J, Dehghan A, Tzoulaki I, Mayeux R, Vardarajan B. Genome-wide scan of Flortaucipir PET levels finds JARID2 associated with cerebral tau deposition. *medRxiv* 2024.10.04.24314853; doi: <https://doi.org/10.1101/2024.10.04.24314853>
3. Beckers L, Rashid M, **Lee AJ**, Chatila ZK, Tamucci KA, Talcoff RC, Hall JL, Bennett DA, Vardarajan BN, Bradshaw EM. CD33 and SHP-1/PTPN6 Interaction in Alzheimer's Disease. *Genes*. 2024; 15(9):1204. <https://doi.org/10.3390/genes15091204>
4. Trumpff C, Monzel AS, Sandi C, Menon V, Klein HU, Fujita M, Lee A, Petyuk VA, Hurst C, Duong DM, Seyfried NT, Wingo AP, Wingo TS, Wang Y, Thambisetty M, Ferrucci L, Bennett DA, De Jager PL, Picard M. Psychosocial experiences are associated with human brain mitochondrial biology. *Proc Natl Acad Sci U S A*. 2024 Jul 2;121(27):e2317673121. doi: 10.1073/pnas.2317673121. Epub 2024 Jun 18. PMID: 38889126; PMCID: PMC11228499.
5. İş Ö, Wang X, Reddy JS, Min Y, Yilmaz E, Bhattarai P, Patel T, Bergman J, Quicksall Z, Heckman MG, Tutor-New FQ, Can Demirdogen B, White L, Koga S, Krause V, Inoue Y, Kanekiyo T, Cosacak MI, Nelson N, **Lee AJ**, Vardarajan B, Mayeux R, Kouri N, Deniz K, Carnwath T, Oatman SR, Lewis-Tuffin LJ, Nguyen T; Alzheimer's Disease Neuroimaging Initiative; Carrasquillo MM, Graff-Radford J, Petersen RC, Jr Jack CR, Kantarci K, Murray ME, Nho K, Saykin AJ, Dickson DW, Kizil C, Allen M, Ertekin-Taner N. Gliovascular transcriptional perturbations in Alzheimer's disease reveal molecular mechanisms of blood brain barrier dysfunction. *Nat Commun*. 2024 Jun 20;15(1):4758. doi: 10.1038/s41467-024-48926-6. PMID: 38902234; PMCID: PMC11190273.
6. Vardarajan B, Kalia V, Reyes-Dumeyer D, Dubey S, Nandakumar R, **Lee A**, Lantigua R, Medrano M, Rivera D, Honig L, Mayeux R, Miller G. Lysophosphatidylcholines are associated with P-tau181 levels in early stages of Alzheimer's Disease. *Res Sq [Preprint]*. 2024 Jan 8;rs.3.rs-3346076. doi: 10.21203/rs.3.rs-3346076/v1. PMID: 38260644; PMCID: PMC10802729.
7. Yang Z, Cieza B, Reyes-Dumeyer D, **Lee A**, Ma Y, Yilmaz E, Lantigua R, Miller G, Brown L, Honig L, Ciener B, Leskinin S, Sivakumar S, Vardarajan B, Dugger BN, Jin LW, Murray ME, Dickson DW, Rissman RA, Hiniker A, Pericak-Vance M, Vance J, Foroud TM, Kizil C, Teich AF, Mayeux R, Tosto G. MU-BRAIN: MUltiethnic Brain Rna-seq for Alzheimer Initiative. *bioRxiv* 2024.02.20.581250; doi: <https://doi.org/10.1101/2024.02.20.581250>
8. De Jager RM, **Lee AJ**, Sigalov A, Taga M. An image segmentation pipeline optimized for human microglia uncovers sources of morphological diversity in Alzheimer's disease. *bioRxiv* 2024.02.01.577128; doi: <https://doi.org/10.1101/2024.02.01.577128>

9. Bartosch AMW, Youth EHH, Hansen S, Wu Y, Buchanan HM, Kaufman ME, Xiao H, Koo SY, Ashok A, Sivakumar S, Soni RK, Dumitrescu LC, Lam TG, Ropri AS, **Lee AJ**, Klein HU, Vardarajan BN, Bennett DA, Young-Pearse TL, De Jager PL, Hohman TJ, Sproul AA, Teich AF. ZCCHC17 modulates neuronal RNA splicing and supports cognitive resilience in Alzheimer's disease. *Journal of Neuroscience*. 2023; JN-RM-2324-22. doi: 10.1523/JNEUROSCI.2324-22.2023. PMID: 38050142.
10. Siddiqui T, Cosacak MI, Popova S, Bhattarai P, Yilmaz E, **Lee AJ**, Min Y, Wang X, Allen M, İş Ö, Atasavum ZT, Rodriguez-Muela N, Vardarajan BN, Flaherty D, Teich AF, Santa-Maria I, Freudenberg U, Werner C, Tosto G, Mayeux R, Ertekin-Taner N, Kizil C. Nerve growth factor receptor (Ngfr) induces neurogenic plasticity by suppressing reactive astroglial Lcn2/Slc22a17 signaling in Alzheimer's disease. *npj Regenerative Medicine*. 2023 Jul 10;8(1):33. PMCID: PMC10333226. doi: [10.1038/s41536-023-00311-5](https://doi.org/10.1038/s41536-023-00311-5).
11. **Lee, A.J.**, Sanchez D., Reyes-Dumeyer D., Manly, J.J., Brickman, A.R., Vardarajan, B.N., Mayeux, R. Reliability and Validity of Self-reported Vascular Risk Factors in a Multi-Ethnic Community Based Study of Aging and Dementia. *Journal of Alzheimer's Disease*. 2023; 95(1):275-285. PMCID: PMC10578288. doi: [10.3233/JAD-230374](https://doi.org/10.3233/JAD-230374)
12. Qiao M, **Lee AJ**, Dolly Reyes-Dumeyer, Kelley Faber, Alison Goate, Alan Renton, Michael Chao, Brad Boeve, Carlos Cruchaga, Margaret Pericak-Vance, Jonathan L. Haines, Roger Rosenberg, Debby Tsuang, Robert A. Sweet, David A. Bennett, Robert S. Wilson, Tatiana Foroud, Richard Mayeux, Badri N. Vardarajan. Polygenic Risk Score Penetrance & Recurrence Risk in Familial Alzheimer Disease. *Annals of Clinical and Translational Neurology*. 2023 May;10(5):744-756. PMCID: PMC10187719.
13. Honig LS, Kang MS, **Lee AJ**, Reyes-Dumeyer D, Piriz A, Soriano B, Franco Y, Coronado ZD, Recio P, Mejía DR, Medrano M, Lantigua RA, Teich AF, Dage JL, Mayeux R. Evaluation of Plasma Biomarkers for A/T/N Classification of Alzheimer Disease Among Adults of Caribbean Hispanic Ethnicity. *JAMA Network Open*. 2023 Apr;6(4):e238214. PMCID: PMC10119732. doi: [10.1001/jamanetworkopen.2023.8214](https://doi.org/10.1001/jamanetworkopen.2023.8214)
14. **Lee AJ**, Ma Y, Yu L, Dawe RJ, McCabe C, Arfanakis K, Mayeux R, Bennett DA, Klein HU, De Jager PL. Multi-region brain transcriptomes uncover two subtypes of aging individuals with differences in Alzheimer risk and the impact of APOEε4. 2023. *bioRxiv* 2023.01.25.524961; doi: doi.org/10.1101/2023.01.25.524961 (under reviewed by *Cell Reports Medicine*)
15. Cook L, Schulze J, Uhlmann WR, Verbrugge J, Marder K, **Lee AJ**, Wang Y, Alcalay RN, Nance M, Beck JC. Tools for communicating risk for Parkinson's disease. *npj Parkinson's Disease*. 2022 Nov;8(1):164. PMCID: PMC9709050.
16. **Lee, A.J.**, Raghavan N.S., Bhattarai P., Siddiqui T., Sariya S., Reyes-Dumeyer S., Flowers X.E., Cardoso, S.A.L, De Jager, P.L., Bennett, D.A., Schneider, J.A, Menon, V., Wang, Y., Lantigua, R.A., Medrano, M. Rivera, D., Jiménez-Velázquez, I.A., Kukull, W.A., Brickman, A.M., Manly, J.J., Tosto, G., Kizil, C., Vardarajan, B.N., Mayeux, R. *FMNL2* regulates gliovascular interactions and is associated with vascular risk factors and cerebrovascular pathology in Alzheimer's disease. *Acta Neuropathologica*. 2022 Jul;144: 59-79. PMCID: PMC9217776
17. Tuddenham JF, Taga M, Haage V, Roostaei T, White C, **Lee AJ**, Fujita M, Khairallah A, Green G, Hyman B, Frosch M, Hopp S, Beach TG, Corboy J, Habib N, Klein HU, Soni RK, Teich AF, Hickman RA, Alcalay RN, Shneider N, Schneider J, Sims PA, Bennet DA, Olah M, Menon V, De Jager PL. A cross-disease human microglial framework identifies disease-enriched subsets and tool compounds for microglial polarization. 2022. *bioRxiv* 2022.06.04.494709; doi: doi.org/10.1101/2022.06.04.494709 (under reviewed by *Nature Neuroscience*)
18. Trumpff C, Owusu-Ansah E, Klein HU, **Lee AJ**, Petyuk V, Wingo TS, Wingo AP, Thambisetty M, Ferrucci L, Seyfried NT, Bennett DA, De Jager PL, Picard M. Mitochondrial respiratory chain protein co-regulation in the human brain. *Heliyon*. 2022 Apr; 8(5):e09353. PMCID: PMC9118667.
19. Diaconu C, **Lee AJ**, Onomichi K, De Jager RL, Riley C, Levine L, Vargas W, Shelter K, De Jager PL, Farber RS. Hypogonadism in men with multiple sclerosis: Prevalence and clinical associations. *Multiple Sclerosis and Related Disorders*. 2022 Mar;59:103508. PMID: 35123293.
20. Epstein S, Xia Z, **Lee AJ**, Dahl M, Edwards K, Levit E, Longbrake EE, Perrone C, Kavak K, Weinstock-Guttman B, Diallo F, Ricci A, Riley CS, De Jager PL, Farber R, Wesley SF; Multiple Sclerosis Resilience to COVID-19 (MSReCOV) Collaborative. Vaccination Against SARS-CoV-2 in Neuroinflammatory Disease: Early Safety/Tolerability Data. *Multiple Sclerosis and Related Disorders*. 2022 Jan;57:103433. PMCID: PMC8638239.

21. Klein HU, Trumpff C, Yang HS, **Lee AJ**, Picard M, Bennett DA, De Jager PL. Characterization of mitochondrial DNA quantity and quality in the human aged and Alzheimer's disease brain. *Molecular Neurodegeneration*. 2021 Nov; 16(1):75. PMID: PMC8572491.
22. Raghavan NS, Dumitrescu L, Mormino E, Mahoney E, **Lee AJ**, Gao Y, Bilgel M, Goldstein D, Harrison T, Engelman CD, Saykin AJ, Whelan CD, Liu JZ, Jagust W, Albert M, Johnson SC, Yang H, Johnson K, Aisen P, Resnick SM, Sperling R, De Jager PL, The Alzheimer's Disease Neuroimaging Initiative, Schneider J, Bennett DA, Schrag M, Vardarajan B, Hohman TJ, Mayeux R. Association Between Common Variants in RBFOX1, an RNA-Binding Protein, and Brain Amyloidosis in Early and Preclinical Alzheimer Disease. *JAMA Neurology*. 2020 Oct;77(10):1288–1298. PMID: PMC7309575
23. **Lee AJ**, Wang Y, Alcalay RN, Mejia-Santana H, Saunders-Pullman R, Bressman S, Corvol JC, Brice A, Lesage S, Mangone G, Tolosa E, Pont-Sunyer C, Vilas D, Schüle B, Kausar F, Foroud T, Berg D, Brockmann K, Goldwurm S, Siri C, Asselta R, Ruiz-Martinez J, Mondragón E, Marras C, Ghate T, Giladi N, Mirelman A, Marder K, Michael J. Fox LRRK2 Cohort Consortium. Penetrance estimate of *LRRK2* p.G2019S Mutation in Non-Ashkenazi Jewish in the Michael J. Fox LRRK2 Consortium. *Movement Disorders*. 2017 Oct;32(10):1432-1438. PMID: PMC5656509
24. Lee J.H, **Lee A.J**, Dang L-H, Pang D, Kisselev S, Krinsky-McHale S.J, Zigman W, Luchsinger J.A, Silverman W, Tycko B, Clark L.N, Schupf N. Candidate Gene Analysis for Alzheimer's Disease in Adults with Down syndrome. *Neurobiology of Aging*. 2017 Aug;56: 150-158. PMID: PMC5603247
25. Schupf N, **Lee AJ**, Park N, Dang LH, Pang D, Yale A, Oh DK, Krinsky-McHale SJ, Jenkins EC, Luchsinger JA, Zigman WB, Silverman W, Tycko B, Kisselev S, Clark L, Lee JH. Candidate genes for Alzheimer's disease are associated with individual differences in plasma levels of beta amyloid peptides in adults with Down syndrome. *Neurobiology of Aging*. 2015 Oct;36(10): e1-10. PMID: PMC4562880
26. Marder K, Wang Y, Alcalay RN, Mejia-Santana H, Tang MX, **Lee AJ**, Raymond D, Mirelman A, Saunders-Pullman R, Clark L, Ozelius L, Orr-Urtreger A, Giladi N, Bressman S; *LRRK2* Ashkenazi Jewish Consortium. Age Specific Penetrance of the *LRRK2* G2019S Mutation in the Michael J. Fox Ashkenazi Jewish LRRK2 Consortium. *Neurology*. 2015 Jul;85(1): 89-95. PMID: PMC4501942

Statistical Methodology Publications:

27. Yang Z, Wang C, Liu L, Khan A, **Lee A**, Vardarajan B, Mayeux R, Kiryluk K, Ionita-Laza I. CARMA is a new Bayesian model for fine-mapping in genome-wide association meta-analyses. *Nature Genetics*. 2023 Jun;55(6):1057-1065. PMID: 37169873.
28. **Lee AJ**, Marder K, Alcalay RN, Wang Y. Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes. *Statistics in Medicine*. 2017 Sep;36(22):3533-3546. PMID: PMC5583003
29. Fan R, **Lee AJ**, Lu Z, Liu A, Troendle JF, Mills JL. Association analysis of complex diseases using triads, parent-child dyads and singleton monads. *BMC Genetics*. 2013 Sep;14:78. PMID: PMC3844511

B. Posters

1. “Multi-ancestry Genome-wide Gene-Vascular Risk Factors Interaction Analyses in Alzheimer's Disease”. *Alzheimer's Association International Conference (AAIC)*, Philadelphia, PA, 7/2024, Poster.
2. “Multi-ancestry Genome-wide Gene-Vascular Risk Factors Interaction Analyses in Alzheimer's Disease”. *Alzheimer's Disease Sequencing Project (ADSP)*, Rockville, MD, 3/2024, Poster.
3. “Multi-ethnic genome-wide, gene-based study identifies genes that interact with vascular risk factors in Alzheimer's Disease”. *AAIC*, Amsterdam, Netherlands, 8/2023, Poster.
4. “Association of short tandem repeats with neuropathological features in late-onset of Alzheimer's disease brains”. *AAIC*, San Diego, CA, 7/2022, Poster.
5. “Multi-region brain transcriptomes uncover two subtypes of aging individuals with differences in Alzheimer risk and the impact of APOEε4”. *AAIC*, Denver, CO, 7/2021, Poster.

6. "Age Specific Penetrance of the LRRK2 G2019S Mutation in the Michael J. Fox Ashkenazi Jewish LRRK2 Consortium". *Annual Research Poster Day, TRANSFORM programs, Irving Institute for Clinical and Translational Research*, Columbia University, NY, 4/2015, Poster.
7. "Multiple genes on Chromosome 21 are associated with individual differences in plasma levels of beta amyloid peptides in adults with Down syndrome". *US-Korea Conference on Science (UKC)*, NJ, 8/2013, Poster. **KSEA Outstanding Poster Award**
8. "Association analysis of complex diseases using triads, parent-child dyads and singleton monads". *Practicum Poster Symposium, Department of Biostatistics*, Columbia University, NY, 5/2013, Poster.
9. "Association Analysis of Complex Diseases Using Triads, Parent-child Pairs, and Singleton Cases". *NIH Summer Research Program Poster Day*, Bethesda, MD, 8/2012, Poster.

C. Book Chapters, Reviews and Commentaries

1. Gorroochurn P. (2012). *Classic Problems of Probability*. Wiley. Acknowledgement for proofreading.

Presentations

Conference Talks

Invited:

1. International Conference on Intelligent Biology and Medicine (ICIBM), Multi-omics and Multi-modal Data Integration in Biomedicine session, Houston, TX. "A novel machine learning method for Temporal profile-guided disease subtyping using high-dimensional omics data". 10/11/2024
2. International Day of Women in Statistics and Data Science (IDWSDS), Use of Artificial Intelligence and Statistics in the World of Mental Health session, Virtual. "Alzheimer's Disease Subtyping through Integration of Longitudinal Cognitive Function, Vascular Risk Factors, and Omics Data Using Novel Latent Mixture Model". 10/8/2024
3. The Health & Aging Brain Study - Health Disparities (HABS-HD) annual meeting, Fort Worth, Texas. "A Novel Machine Learning method for Disease Subtyping Using Longitudinal Clinical and High-Dimensional Omics Data". 9/26/2024
4. New England Statistics Symposium (NESS), Advances In Statistical Machine Learning With Innovative Applications session, Storrs, CT. "A Semi-Parametric Approach for Longitudinal Outcome-Guided Disease Subtyping Using High-Dimensional Omics Data". 5/22/2024
5. AD/PD, Ancestry and genetics of neurodegeneration session, Lisbon, Portugal. "Genome-wide Gene-based study in Multi-ethnic Cohorts identifies Genes that Interact with Vascular Risk Factors in Alzheimer's Disease". 3/6/2024. **Junior Faculty Award.**
6. NIA Annual Tri-Consortia Meeting-AMP AD-MODEL AD-TREAT AD, Virtual. "Multi-region brain transcriptomes uncover two subtypes of aging individuals with differences in Alzheimer risk and the impact of APOEε4". 12/2021
7. Accelerating Medicines Partnership Program for Alzheimer's Disease (AMP AD) MODEL-AD TREAT-AD Joint Annual Meeting, Virtual. "Population Structure of the Older Brain Using Multi-Region Transcriptomic Data Approach". 12/10/2020

Contributed:

1. American Society of Human Genetics (ASHG), Denver, CO. "Novel short tandem repeats on the Telomere-to-Telomere reference genome are associated with Alzheimer's disease neuropathology". 11/6/2024
2. AD/PD, Gothenburg, Sweden, Hybrid. "Genetic Association Between Alzheimer's Disease and Cardio-Cerebrovascular Risk Factors". 3/2023
3. Joint Statistical Meetings (JSM), Virtual. "Unsupervised Clustering of Aging Individuals Using Multi-Region Brain Transcriptomes". 8/2021
4. JSM, Denver, CO. "Control Confounding by Familial Relatedness in Genome-Wide Association Studies". 7/2019

5. JSM, Vancouver, British Columbia, Canada. “Efficient Statistical Methods for Genome-Wide Association Studies with Disease Family History Data”. 7/2018. **ASA Korean International Statistical Society Outstanding Student Paper Award**
6. JSM, Baltimore, MD. “Efficient Statistical Methods for Association Studies with Dense Genotypes and Family History of Disease”. 8/2017
7. JSM, Chicago, IL. “Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes”. 8/2016. **ASA Honorable Mention for Student Paper Award, Risk Analysis Section**
8. The Association for Clinical and Translational Science (ACTS), Washington DC. “Age Specific Risk of Parkinson's Disease with *LRRK2* G2019S mutations and Covariates”. 4/2016
9. American Public Health Association Annual meeting and Exposition, Boston, MA. “Association analysis of complex diseases using triads, parent-child dyads and singleton monads”. 11/2013
10. NSF-AGEP National meeting, Iowa city, IA. “Mathematical Modeling of the Immune Response in Tissues”. 7/2007

Invited Seminar Talks

1. The Center for Translational and Computational Neuroimmunology (CTCN) division seminar, Department of Neurology, Columbia University, NY. “A Novel Machine Learning method for Disease Subtyping Using Longitudinal Clinical and High-Dimensional Omics Data”. 10/3/2024
2. Alzheimer's Disease Research Center (ADRC)-Research Education Core (REC), Columbia University. “A Novel Machine Learning method for Disease Subtyping Using Longitudinal Clinical and High-Dimensional Omics Data”. 9/20/2024
3. ADSP-PHC External Advisory Board Meeting, Hybrid. “ADSP-PHC Vascular Risk Factors Harmonization”.
4. ADSP-PHC Investigators' Meeting, Nashville, TN, Hybrid. “ADSP-PHC Vascular Risk Factors Harmonization”. 6/6/2024
5. Sergievsky Faculty Meeting, Department of Neurology, Columbia University, NY. “Multi-Omics of Cardio-Cerebrovascular Risk Factors in Alzheimer's Disease”. 5/14/2024
6. Neurology Grand Rounds, Ludwig Pilot Grant in Neurodegeneration, Department of Neurology, Columbia University, NY. “Multi-Omics of Cardio-Cerebrovascular Risk Factors in Alzheimer's Disease”. 4/26/2024
7. ADSP-PHC Workgroup Meeting, Hybrid. “ADSP-PHC Vascular Risk Factors Harmonization”. 2/15/2024
8. ADSP-PHC Investigators' Meeting, Nashville, TN, Hybrid. “Vascular Risk Factors Harmonization”. 6/2023
9. Neurology Grand Rounds, Department of Neurology, Columbia University, NY. “Cerebrovascular Pathology in Alzheimer's Disease: Mechanisms and Models”. 3/2023
10. CTCN division seminar, Department of Neurology, Columbia University, NY. “Short Tandem Repeats in Alzheimer's Disease?”. 7/2022
11. CTCN division seminar, Department of Neurology, Columbia University, NY. “Gene interacts with cerebrovascular risk factors to alter Alzheimer's disease risk”. 9/2021
12. CTCN division seminar, Department of Neurology, Columbia University, NY. “Exploring subtypes of aging human brains using transcriptomic profiles”. 11/2020
13. Precision Medicine Working Group, Department of Biostatistics, Columbia University, NY. “Population structure of the aging human brain”. 10/2020
14. Graduate Student Research Seminars, Department of Biostatistics, Columbia University, NY. “Statistical Methods for Association Studies with Dense Genotypes and Family History of Disease”. 5/2017
15. Graduate Student Research Seminars, Department of Biostatistics, Columbia University, NY. “Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes”. 3/2016
16. Graduate Student Research Seminars, Department of Biostatistics, Columbia University, NY. “Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes”. 10/2015
17. Department of Computational Science and Engineering, Yonsei University, Seoul, South Korea. “Exploring the validity of spatial model in the spread of Foot-and-mouth Disease”. 3/2011

18. Department of Computational Science and Engineering, Yonsei University, Seoul, South Korea. "Traffic flow with Non-linear first-order equation". 5/2010
 19. Department of Computational Science and Engineering, Yonsei University, Seoul, South Korea. "Reaction Diffusion Equation with Convection equation". 3/2010
-