

Jun Young (Jun) Park

Contact Information

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Current Position

July 2020 - **Assistant Professor**, University of Toronto
Department of Statistical Sciences and Department of Psychology (cross-appointed)
June 2021 - **Affiliate Scientist (status-only)**, The Centre for Addiction and Mental Health (CAMH)

Research Interests

Methodological: Modeling of correlated data (multivariate time-series, spatiotemporal data);
Resampling-based inference (permutation and bootstrapping);
Integration of high-dimensional data.
Scientific: Neuroimaging, data integration, statistical genetics and genomics

Education

May 2020 **PhD in Biostatistics**, University of Minnesota – Twin Cities
Advisor: Mark Fiecas
June 2012 **BA in Mathematics/Statistics**, Carleton College

Publications & Manuscripts

♦: Student author *: Corresponding author

Published/accepted

1. ♦Nichole R. Bouffard, Ali Golestani, Iva K. Brunec, Buddhika Bellana, **Jun Young Park**, Morgan D. Barense, Morris Moscovitch. Single voxel autocorrelation uncovers gradients of temporal dynamics in the hippocampus and entorhinal cortex during rest and navigation. *Cerebral Cortex* (accepted with minor revision). BioRxiv: 10.1101/2021.07.28.454036
2. ♦Sarah M. Weinstein, Simon N. Vandekar, Erica B. Baller, ♦Danni Tu, Azeez Adebimpe, Tinashe M. Tapera, Ruben C. Gur, Raquel E. Gur, John Detre, Armin Raznahan, Aaron F. Alexander-Bloch, Theodore D. Satterthwaite, Russell T. Shinohara, ***Jun Young Park**. Spatially-enhanced clusterwise inference for testing and localizing intermodal correspondence. *Neuroimage*, 2022, 255, 119712. doi: 10.1016/j.neuroimage.2022.119712
3. **Jun Young Park**, Mark Fiecas
CLEAN: Leveraging spatial autocorrelation in neuroimaging data in clusterwise inference. *Neuroimage*, 2022, 255, 119192. doi: 10.1016/j.neuroimage.2022.119192
4. Eric F. Lock, **Jun Young Park**, Katherine A. Hoadley
Bidimensional linked matrix factorization for pan-omics pan-cancer analysis. *Annals of Applied Statistics*, 2022, 16(1): 193-215. doi: 10.1214/21-AOAS1495
5. **Jun Young Park**, Mark Fiecas
Permutation-based inference for spatially localized signals in longitudinal MRI data. *Neuroimage*, 2021, 239, 118312. doi: 10.1016/j.neuroimage.2021.118312
6. **Jun Young Park**, Joerg Polzehl, Snigdhasu Chatterjee, André Brechmann, Mark Fiecas
Semiparametric modeling of time-varying activation and connectivity in task-based fMRI data. *Computational Statistics & Data Analysis*, 2020, 150, 107006. doi: 10.1016/j.csda.2020.107006
7. **Jun Young Park**, Eric F. Lock
Integrative factorization of bidimensionally linked matrices. *Biometrics*, 2020, 76(1):61-74. doi: 10.1111/biom.13141
8. Chong Wu, **Jun Young Park**, Weihua Guan, Wei Pan
An adaptive gene-based test for methylation data.

BMC Proceedings, (Genetic Analysis Workshop (GAW) 20), 2018, 12(Supp 1):68. doi: 10.1186/s12919-018-0126-9

9. **Jun Young Park**, Chong Wu, Wei Pan

An adaptive gene-level association test for pedigree data.

BMC Genetics, (Genetic Analysis Workshop (GAW) 20), 2018, 19(Supp 1):68. doi: 10.1186/s12863-018-0639-2

10. **Jun Young Park**, Chong Wu, Saonli Basu, Matt McGue, Wei Pan

Adaptive SNP-set association testing in generalized linear mixed models with application to family studies.

Behavior Genetics, 2018, 48(1):55-66. doi: 10.1007/s10519-017-9883-x

Submitted/under review

11. Katherine St.Clair, **Jun Young Park**, Brian R. Gray, Robert S. Capers. Modeling occupancy probabilities hierarchically, given misclassification and spatial dependence. *Submitted*.

12. ♦Rongqian Zhang, Lindsay D. Oliver, Aristotle N. Voineskos, ***Jun Young Park**. A structured multivariate approach for removal of latent batch effects. *Submitted*. BioRxiv: 10.1101/2022.08.01.502396

This manuscript won a student paper award (runner-up) for SMI 2022.

In preparation

13. Extending inverse probability of censoring weighting for improved risk prediction.

14. Search for change-points in dynamic functional connectivity through kernel filtering.

15. Leveraging multi-modal brain imaging for discovery of casual pathways in genome-wide association studies.

16. Harmonization of high dimensional neuroimaging data.

17. Spatial-extent inference in reliability and heritability studies.

Grants and Supports

1. Title: Spatial-extent inference and prediction in brain imaging data
Source: Discovery grant, Natural Sciences and Engineering Research Council (NSERC) of Canada
Role: Principal investigator
Period: 2022-2027
Award: \$95,000
2. Title: Spatial-extent inference and prediction in brain imaging data
Source: Discovery launch supplement, Natural Sciences and Engineering Research Council (NSERC) of Canada
Role: Principal investigator
Period: 2022-2027
Award: \$12,500
3. Title: Removing unwanted variations from heterogeneous neuroimaging and genomic data
Source: Catalyst grant, Data Science Institute, University of Toronto
Role: Nominated principal investigator (Co-PI: Laurent Briollais (Lunenfeld), Michael Wilson (Sickkids))
Period: 2022-2023
Award: \$100,000
4. Title: Multidisciplinary doctoral program
Source: CANSSI Ontario
Role: Supervisor (co-supervisor: Aristotle Voineskos (CAMH))
Period: 2022-2027
Award: \$50,000 equivalent
5. Title: Revisiting the income-happiness paradox: testing the rapidity of income growth as a key to happiness
Source: SSHRC Insight Grant
Role: Collaborator (PI: Dr. Felix Cheung (Department of Psychology, University of Toronto))
Period: 2021-2025

Awards & Honors

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|------|----------------------------------------|-------------------------------------------------------|
| 2020 | Student Paper Award (runner-up) | American Statistical Association (Section in Imaging) |
| 2019 | Student Paper Award (runner-up) | American Statistical Association (Section in Imaging) |
| 2019 | Student Award | Statistical Methods in Imaging (SMI) conference |
| 2019 | Biostatistics Best Student Paper Award | Division of Biostatistics, University of Minnesota |

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| 2019 | MnDRIVE PhD Informatics Fellowship | University of Minnesota |
| 2014 | Outstanding Teaching Assistant Award | Division of Biostatistics, University of Minnesota |
| 2013 | Dean's PhD Scholar's Award | School of Public Health, University of Minnesota |

Presentations

Talks

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| 2023 | Eastern North American Region (ENAR) meeting (scheduled) |
| 2022 | Computational and Methodological Statistics (CMStatistics) (scheduled) Joint Statistical Meetings (JSM) Data Science Institute, University of Toronto Eastern North American Region (ENAR) meeting |
| 2021 | PennSIVE Center, University of Pennsylvania Perelman School of Medicine Eastern North American Region (ENAR) meeting |
| 2020 | Joint Statistical Meeting (JSM) (virtual) Eastern North American Region (ENAR) meeting (virtual) Wake Forest University School of Medicine Vanderbilt University Medical Center Columbia University |
| 2019 | International Chinese Statistical Association (ICSA) Applied Statistics Symposium Joint Statistical Meeting (JSM) Statistical Methods in Imaging (SMI) Eastern North American Region (ENAR) meeting |
| 2018 | Eastern North American Region (ENAR) meeting |
| 2012 | Northfield Undergraduate Mathematics Symposium |

Posters

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| 2022 | The Organization of Human Brain Mapping (OHBM) meeting Statistical Methods in Imaging (SMI) conference |
| 2021 | Statistical Methods in Imaging (SMI) conference |
| 2019 | Twin Cities ASA Chapter Meeting UMN School of Public Health (SPH) Research Day |
| 2017 | UMN Minnesota Supercomputing Institute (MSI) Research Exhibition UMN School of Public Health (SPH) Research Day |

Teaching

Course instructor (University of Toronto)

| <i>Course number</i> | <i>Course title</i> | <i>Semester(s)</i> |
|----------------------|---------------------------------|-------------------------|
| PSY 305 | Treatment of psychological data | Winter 2023 (scheduled) |
| STA442 | Methods of applied statistics | Fall 2022 |
| STA447/2006 | Stochastic processes | Winter 2021, 2022 |
| STA1008 | Applied statistics | Fall 2020, 2021, 2022 |

Teaching assistant (University of Minnesota)

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| Courses: | Biostatistical literacy, Biostatistics I, Exploring and visualizing data in R, Clinical trials, Statistical methods for correlated data, Linear models, Statistical learning and data mining |
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Services

Service to the profession:

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| <i>Conferences</i> | Session organizer, ENAR 2023 Session organizer, ENAR 2022 Session chair, ICSA Applied Statistics Symposium 2019 Session chair, ENAR 2019 |
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| <i>Journal review</i> | Annals of Applied Statistics, Bioinformatics, Biometrika, Frontiers in Neuroscience, Journal of American Statistical Association, Journal of Machine Learning Research, NeuroImage, Statistics in Medicine, WIREs Computational Statistics |
| <i>Others</i> | Reviewer of the student paper competition, ASA Statistics in Imaging section 2022 |

Service to the university/department

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| 2022– | Mentor, CANSSI Ontario STAGE (Strategic Training for Advanced Genetic Epidemiology) program |
| 2020– | Faculty member, Univ of Toronto Department of Statistical Sciences graduate committee |
| 2018–2020 | Student representative, Univ of Minnesota Biostatistics faculty meeting |
| 2018–2019 | Reviewer, Univ of Minnesota Council of Graduate Students (COGS) grants application review committee |

Students (University of Toronto)

Supervision

| <i>Name</i> | <i>Degree program</i> | <i>Period</i> | <i>Role</i> |
|----------------|-----------------------|-------------------|---------------------------------------------------------------|
| David Veitch | Ph.D. | Sept 2022-present | Co-supervisor for the DSI PhD fellowship (with Dr. Zhou Zhou) |
| Ruyi Pan | Ph.D. | Sept 2022-present | Supervisor (with Drs. Aristotle Voineskos and Nancy Reid) |
| Rongqian Zhang | Ph.D. | Sept 2021-present | Supervisor |
| Yuan Tian | Ph.D. | Sept 2021-present | Supervisor (with Dr. Jessica Gronsbell) |
| Zhengdan Li | Undergraduate | May 2022-Aug 2022 | RA supervisor |
| Linxi Chen | Undergraduate | May 2022-Aug 2022 | RA supervisor |
| Xiaoli Yang | Undergraduate | Jan 2021-Aug 2021 | RA supervisor |

Oral exam committee

| <i>Name</i> | <i>Degree program</i> | <i>Graduation year</i> |
|-------------|-----------------------|------------------------|
| Fan Wang | Ph.D. | 2022 |
| Lin Zhang | Ph.D. | 2021 |
| Wei Q. Deng | Ph.D. | 2021 |

STAGE program

| <i>Name</i> | <i>Degree program</i> | <i>Period</i> | <i>Role</i> |
|------------------|-----------------------|------------------|--------------------------------------------------------|
| Yuan Tian | Ph.D. | Nov 2022-present | Mentor (with Drs. Jessica Gronsbell and Daniel Felsky) |
| Tara Henechowicz | Ph.D. Neuroscience | Nov 2022-present | Mentor (with Dr. Daniel Felsky) |

Miscellaneous

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| Citizenship | Republic of Korea (South Korea) |
| Languages | English, Korean |
| Membership | American Statistical Association (ASA), Organization of Human Brain Mapping (OHBM) |