

# Jun Young (Jun) Park

## Contact Information

Email: junjy.park@utoronto.ca  
Website: <https://junjypark.github.io/>  
Address: 700 University Ave, Office 9085, Toronto, ON M5G 1X6, Canada

## Current Position

July 2020 - **Assistant Professor**, University of Toronto  
Department of Statistical Sciences and Department of Psychology (joint appointment)  
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. ♦Ruyi Pan, Erin W. Dickie, Colin Hawco, Nancy Reid, Aristotle N. Voineskos, \***Jun Young Park**.  
Spatial-extent inference for testing variance components in reliability and heritability studies.  
*Imaging Neuroscience*, 2023. doi: 10.1162/imag\_a\_00058
2. ♦Rongqian Zhang, Lindsay D. Oliver, Aristotle N. Voineskos, \***Jun Young Park**.  
RELIEF: a structured multivariate approach for removal of latent inter-scanner effects.  
*Imaging Neuroscience*, 2023. doi: 10.1162/imag\_a\_00011  
# This manuscript won a student paper award (runner-up) for SMI 2022.
3. ♦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*, 2023, 33(6): 3265-3283. doi: 10.1093/cercor/bhac480
4. ♦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
5. \***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
6. 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
7. \***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

# This manuscript won a student paper award fo ASA Statistics in Imaging student paper competition 2020.

8. \***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  
# This manuscript won a student paper award for SMI 2019 and ASA Statistics in Imaging student paper competition 2019.
9. **Jun Young Park**, Eric F. Lock  
Integrative factorization of bidimensionally linked matrices.  
*Biometrics*, 2020, 76(1):61-74. doi: 10.1111/biom.13141
10. 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
11. **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
12. **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**

13. Katherine St.Clair, **Jun Young Park**, Brian R. Gray, Robert S. Capers. Modeling occupancy probabilities hierarchically, given misclassification and spatial dependence. *Submitted*.
14. ♦David Veitch, \*Yinqiu He, \***Jun Young Park**. Rank-adaptive covariance changepoint detection for estimating dynamic functional connectivity from fMRI data. *Submitted*. Arxiv: 10.48550/arXiv.2309.10284  
# This manuscript won a distinguished student paper award for ENAR 2024.
15. ♦Rongqian Zhang, ♦Linxi Chen, Lindsay D. Oliver, Aristotle N. Voineskos, \***Jun Young Park**. SAN: Mitigating spatial covariance heterogeneity in cortical thickness data from multiple sites or scanners. *Submitted*. BioRxiv: 10.1101/2023.12.04.569619

### **In preparation**

15. Extending inverse probability of censoring weighting for improved risk prediction.
16. Leveraging multi-modal brain imaging for discovery of causal pathways in genome-wide association studies.
17. A general method to improve power of association between random vectors.
18. Spatial conditional correlation analysis for detecting age trajectories in intermodal coupling.

### **Grants and Supports**

1. Title: Fostering open science and reproducibility in neuroimaging studies by leveraging summary statistics  
Source: Connaught New Researcher Award  
Role: Principal Investigator  
Period: 2023-2025  
Award: \$20,000
2. Title: Leveraging multi-modal neuroimaging for the discovery of modality-specific genetic interactions for Alzheimer's disease  
Source: Accelerator grant, University of Toronto McLaughlin Centre  
Role: Lead Principal Investigator (Co-PI: Daniel Felsky (CAMH), Jessica Gronsbell)  
Period: 2023-2024  
Award: \$75,000
3. 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
4. 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
5. 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
6. Title: Multidisciplinary doctoral program  
 Source: CANSSI Ontario  
 Role: Supervisor (co-supervisor: Aristotle Voineskos (CAMH))  
 Period: 2022-2027  
 Award: \$50,000 equivalent
7. 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

2023	Connaught New Researcher Award	The Connaught Fund
2023	Resource Allocation Competition	Digital Research Alliance of Canada
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
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*

- 2024 Institute for Mathematical and Statistical Innovation, University of Chicago (scheduled)
- 2023 Computational and Methodological Statistics (CMStatistics)  
 University of California – Santa Cruz  
 Joint Statistical Meetings (JSM)  
 The 6th International Conference on Econometrics and Statistics  
 NeuroImaging Statistics satellite meeting to the 2023 Organization for Human Brain Mapping  
 Statistical Methods in Imaging (SMI) conference  
 Banff International Research Station (BIRS) workshop at Casa Matemática Oaxaca, Mexico  
 Eastern North American Region (ENAR) meeting
- 2022 University of Oxford, Big Data Institute  
 Computational and Methodological Statistics (CMStatistics)  
 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***

2023 The Organization of Human Brain Mapping (OHBM) meeting

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, 2024 (scheduled)
STA442	Methods of applied statistics	Fall 2022, 2023
STA447/2006	Stochastic processes	Winter 2021, 2022
STA1008	Applied statistics	Fall 2020, 2021, 2022, 2023

#### ***Teaching assistant (University of Minnesota)***

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

### **Services**

#### ***Service to the profession:***

<i>Conferences</i>	Session organizer, JSM 2023 Topic-contributed session Session organizer, ENAR 2023 Invited session Session organizer, ENAR 2022 Invited session Session chair, ICSA Applied Statistics Symposium 2019 Session chair, ENAR 2019
<i>Journal review</i>	Annals of Applied Statistics, Bioinformatics, Biometrics, Biometrika, Frontiers in Neuroscience, Human Brain Mapping, Imaging Neuroscience, Journal of American Statistical Association, Journal of Machine Learning Research, NeuroImage, Statistics in Biosciences, Statistics in Medicine, WIREs Computational Statistics
<i>Others</i>	Reviewer of the student paper competition, ASA Statistics in Imaging section 2022 and 2023

#### ***Service to the university/department***

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 (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)
Hainan Xu	Master	Sept 2023-present	RA supervisor
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)

#### Reading course

<i>Name</i>	<i>Degree program</i>	<i>Period</i>
Haonan Gao	Undergraduate	Summer 2023
Joanna Lo	Undergraduate	2020-2021

#### **Miscellaneous**

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