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 (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 (in press), 2023+. BioRxiv: 10.1101/2023.04.19.537270
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

8. *__Jun Young Park__, Joerg Polzehl, Snigdhansu 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
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
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) (scheduled)
	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)

Course number	*Course title*	*Semester(s)*
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:

Conferences 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

Journal review 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

Others 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

Name	*Degree program*	*Period*	*Role*
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

Name	*Degree program*	*Graduation year*
Fan Wang	Ph.D.	2022
Lin Zhang	Ph.D.	2021
Wei Q. Deng	Ph.D.	2021

STAGE program

Name	*Degree program*	*Period*	*Role*
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

Name	*Degree program*	*Period*
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)