# Chi-Kuang Yeh, PhD

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CANSSI Distinguish Postdoctoral Fellow

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 GITHUB: https://github.com/chikuang
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R⁶ RESEARCHGATE: Chi-Kuang Yeh
in LINKEDIN: https://www.linkedin.com/in/chikuang/

## Employment

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| Sep 2023 – | CANSSI DISTINGUISH POSTDOCTORAL FELLOW, Department of Statistics and Actuarial Science, University of Waterloo, ON, Canada. <br> Mentor: Peijun Sang, Archer Yi Yang, Qihuang Zhang & Celia M.T. Greenwood |
| Sep 2023 – | ASSOCIATE POSTDOCTORAL FELLOW, Mila – Quebec AI Institute, QC, Canada. <br> Host: Archer Yi Yang |
| Sep 2018 – | ASSOCIATE MEMBER, Waterloo Health Data Science lab. <br> Host: Joel A. Dubin |

## Research areas

Functional data analysis • Time series analysis • Optimal design of experiments • Longitudinal data analysis • High-dimensional statistics • Dependence modeling

## Education

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| Sep 2018 – Aug 2023 | PH.D. in Statistics, University of Waterloo, ON, Canada <br> Advisor: Gregory Rice & Joel A. Dubin <br> Thesis: *Methods in Functional Data Analysis: Forecast Evaluation, Robust Serial Dependence Measures, and a Spatial Factor Copula Model* |
| Sep 2016 – Jul 2018 | MSc in Statistics, University of Victoria, BC, Canada <br> Advisor: Julie Zhou <br> Thesis: *Optimal Regression Design under Second-order Least Squares Estimator: Theory, Algorithm and Applications* |

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| Sep 2013 – Apr 2016 | BSc (H.) in Mathematics & Statistics with minor in Computer science, University of Victoria, BC, Canada |

## Publications

### PUBLISHED

[1] **Yeh, C.-K.** & Zhou, J. (2021). "Properties of optimal regression designs under the second-order least squares estimator." *Statistical Papers*, 62, 75-92.

[2] **Yeh, C.-K.**, Rice, G. & Dubin, J.A. (2022). "Evaluating real-time probabilistic forecasts with application to National Basketball Association outcome prediction." *The American Statistician*, 76, 214-223.

[3] **Yeh, C.-K.**, Rice, G. & Dubin, J.A. (2023). "Functional spherical autocorrelation: A robust estimate of the autocorrelation of a functional time series." *Electronic Journal of Statistics*, 17, 650–687.

[4] **Yeh, C.-K.** & Sang, P. (2023). "Variable Selection in Multivariate Functional Linear Regression." *Statistics in Bioscience.*

### PREPRINT

[1] **Yeh, Chi-Kuang** & Zhou, Julie, "CVXSADes: a stochastic algorithm for constructing exact optimal regression designs with single or multiple objectives." [ARXIV], [RESEARCHGATE]

## Awards & Honours

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| 2023 – 2025 | CANSSI Distinguish Postdoctoral Fellowship, Canadian Statistical Sciences Institute |
| 2021 – 2023 | Queen Elizabeth II Graduate Scholarship, Government of Ontario |
| 2020 – 2023 | President's Graduate Scholarship, UWaterloo |
| 2022 Mar | Statistics and Actuarial Science Best Research Presentation Prize, SAS Research Presentation day, UWaterloo |
| 2022 Mar | Statistics & Actuarial Science Chair's Award, UWaterloo |
| 2020 – 2021 | Ontario Graduate Scholarship, Government of Ontario |
| 2021 Apr | Statistics & Actuarial Science Chair's Award, UWaterloo |
| 2018 – 2021 | Mathematics Domestic Doctoral Scholarship, UWaterloo |
| 2018 – 2020 | Math Domestic Grad Award, UWaterloo |
| 2020 Nov | Statistics & Actuarial Science Chair's Award, UWaterloo |
| 2020 Mar | Statistics & Actuarial Science Chair's Award, UWaterloo |
| 2019 Nov | University of Waterloo Graduate Scholarship, UWaterloo |
| 2018 Jun | Student Travel Award, Statistical Society of Canada |

| 2018 | Graduate Student Conference Travel Grant, UVic |
| 2018 Apr | CUPE Conference Travel Award, UVic |
| 2017 – 2018 | Faculty of Graduate Studies Scholarship, UVic |
| 2017 Dec | Florence and Wallace Wilkinson Memorial Award, UVic |
| 2016 | University Scholarship, UVic |
| 2010 | Summit Entrance Scholarship, Simon Fraser University |

## Presentations

INVITED

2024     **Multivariate spatial functional principal component analysis**, (Scheduled), June 5, Statistical Society of Canada annual meeting, Memorial University of Newfoundland, St. John's, Newfoundland and Labrador, Canada.

**Bandwidth selection for estimation of long-run covariance of functional time series using semi-parametric approach** (Scheduled, June 7-9) TBA, The Sixth ICSA-Canada Chapter Symposium.

**Robust Serial Dependence Measures of a Functional Time Series**, February 23, UVic- PIMS data science seminar series, University of Victoria with Online Broadcast, Victoria, Canada.

2023     **Functional spherical autocorrelation: robust autocorrelation estimation of a functional time series**, July 17th, 64th ISI World Statistics Congress, Ottawa, Canada.

**Functional spherical autocorrelation: a robust estimate of the autocorrelation of a functional time series**, March 8, Institution of Statistics Seminar, Academia Sinica, Taipei, Taiwan.

CONTRIBUTED

2023     **Functional Spherical Autocorrelation: Robust Autocorrelation Estimation of a Functional Time Serie**, August 7, Joint Statistical Meetings, Toronto, Canada.

**Functional spherical autocorrelation: robust autocorrelation estimation of a functional time series**, May 29, Statistical Society of Canada annual meeting, Carleton University, Ottawa, Canada.

2022     **Functional spherical autocorrelation: a robust estimate of the autocorrelation of a functional time series**, October 15, Third Waterloo Student Conference in

Statistics, Actuarial Science and Finance, UWaterloo.

**Projection based model validation and identification methods for functional time series**, June 2, Statistical Society of Canada Annual Meeting, Virtual.

**Projection based model validation and identification methods for functional time series**, March 11, Statistics and Actuarial Science Virtual Research Presentation Day, UWaterloo, Canada.

2021    **Evaluating real-time updated probabilistic forecasts with application to National Basketball Association outcome prediction**, June 10, Statistical Society of Canada Annual Meeting, Virtual.

**Evaluating real-time updated probabilistic forecasts with application to National Basketball Association outcome prediction**, February 5th, Statistics and Actuarial Science Virtual Research Presentation Day, UWaterloo, Canada.

**Evaluating the performance of continuously updated probabilistic forecasts with application to National Basketball Association**, January 20, Student Seminar Series, Department of Statistics and Actuarial Science, UWaterloo, Canada.

2020    **Evaluating Probabilistic Forecasts with an Application in National Basketball Association**, Health Data Science Lab, UWaterloo, Canada.

2019    **Properties of Optimal Regression Designs under Second-Order Least Squares Estimator**, Waterloo Student Conference in Statistics, Actuarial Science and Finance, UWaterloo, Canada.

**Current and Past Research conducted on freely available multi-center (eICU) and single-center (MIMIC's) databases for critical care research**, Health Data Science Lab, UWaterloo, Canada.

2018    **Properties of Optimal Regression Designs under Second-Order Least Squares Estimator**, Sixth Canadian Statistics Student Conference, McGill University, Canada.

**Optimal Regression Designs Under the Second-Order Least Squares Estimator**, Joint Statistical Meetings, Vancouver downtown, BC, Canada.

2017    **On Particle Swarm Optimization Algorithm to Solve Statistical Problems**, Department of Mathematics and Statistics, UVic, Canada.

# Teaching Experience

2024 winter **Stat 230 Probability**.

### Guest Lecturer - University of Victoria

2017 Fall *"Introduction to R Markdown and LaTeX"* in Stat 353 Applied Linear Regression, Host: Laura L.E. Cowen.

### Tutorial Instructor

University of Waterloo

2019 Spring **Stat 231 Statistics**.
2019 Winter **Stat 231 Statistics**.

University of Victoria

2018 Spring **Stat 123 Data Science**.
2017 Fall **Math 100 Calculus I – Pathway**.

### Teaching Assistant

University of Waterloo

2022 fall **Stat 331 Applied Linear Models**, Instructor: Glen McGee.
2022 winter **Stat 454/854 Sampling Theory and Practice**, Instructor: Changbao Wu.
2021 fall **Stat 333 Applied Probability**, Instructor: Steve Drekic & Mirabelle Huynh.
2021 spring **Stat 333 Applied Probability**, Instructor: Steve Drekic & Mirabelle Huynh.
2021 winter **Stat 443 Forecasting**, Instructor: Gregory Rice.
2021 winter **Stat 929 Time Series 1**, Instructor: Gregory Rice.
2021 fall **Stat 443 Forecasting**, Instructor: Paul Marriott.
2020 fall **Stat 331 Applied Linear Models**, Instructor: Samuel W.K. Wong.
2020 spring **Stat 331 Applied Linear Models**, Instructor: Kun Liang.
2019 spring **Stat 443 Forecasting**, Instructor: Paul Marriott.
**Stat 231 Statistics**, Instructor: James Adcock.
2019 winter **Stat 330 Mathematical Statistics**, Instructor: Yeying Zhu.
**Stat 231 Statistics**, Instructor: James Adcock.
2018 fall **Stat 440/840 Experimental Design**, Instructor: Jeroen de Mast.
**Stat 231 Statistics**, Instructor: James Adcock.

University of Victoria

2018 summer

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| | **Stat 255 Statistics for Life Sciences I**, Instructor: Michelle Edwards. |
| 2018 spring | **Stat 123 Data Science**, Instructor: Fan Wu. |
| | **Math 151 Finite Mathematics**, Instructor: Amanda Malloch. |
| 2017 fall | **Math 100 Calculus 1 – Pathway**, Instructor: Brittany Halverson-Duncan. |
| 2017 spring | **Math 102 Calculus for Social and Biological Science**, Instructor: Brittany Halverson-Duncan. |
| 2016 fall | **Stat 260 Introductory to Probability and Statistics I**, Instructor: Chedo Barone. |
| 2015 fall | **Math 102 Calculus for Social and Biological Science**, Instructor: Junling Ma |
| 2015 spring | **Math 100 Calculus I–Pathway**, Instructor: Elizabeth McLeish. |
| | **Math 101 Calculus II**, Instructor: Svetlana Oshkai. |
| 2014 fall | **Stat 255 Statistics for Life Sciences I**, Instructor: Laura L.E. Cowen. |
| | **Math 122 Logic and Foundation**, Instructor: Michelle Edwards. |

### OTHER - UNIVERSITY OF VICTORIA

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| 2017 | **Teaching Assistant Conference Certificate**, Learning and Teaching Centre (LTC), UVic |
| 2017 | **Teaching Assistant ProD Certificate**, LTC, UVic |
| 2017 | **Teaching Fundamental Certificate**, LTC, UVic. |

### LANGARA COLLEGE

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| 2012 - 2013 | **Math & Stats Activity Centre (MSAC)**, Math tutor, Langara College, Vancouver, BC, Canada. |

## Mentoring

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| Now | **Tatiana Krikella**, PhD Candidate in Statistics (Biostatistics), UWaterloo, Canada. |

## Service and Outreach

### ORGANIZING AND VOLUNTEER SERVICE

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| 2023 Jun – Now | **Transfer Learning reading group**, Co-organizer, UWaterloo, Canada. |
| | **The Twelfth Annual Canadian Statistics Student Conference**, Judge, St. John's, Newfoundland and Labrador, Canada. |
| 2023 Oct | **Fourth Waterloo Student Conference in Statistics, Actuarial Science and Finance**, Judge, UWaterloo, Canada. |
| 2020 May - 2023 Aug | **Student seminar series**, Organizer, Departmental Statistics and Actuarial Science, UWaterloo, Canada. |

2022 **Third Waterloo Student Conference in Statistics, Actuarial Science and Finance**, Organizing Committee and Session chair, UWaterloo, Canada.

2022 **Datafest**, Mentor, American Statistical Association, University of Waterloo, Canada.

2020 **Second Waterloo Student Conference in Statistics, Actuarial Science and Finance**, Organizing Committee and Session chair, UWaterloo Canada.

2019 **First Waterloo Student Conference in Statistics, Actuarial Science and Finance**, Organizing Committee and Session chair, UWaterloo Canada.

2018 **Local student volunteer**, International Chinese Statistical Association, Joint Statistical Meeting, Vancouver, BC, Canada.

JOURNAL REFEREE

2023 Computational Statistics & Data Analysis, The American Statistician

2022 TEST

# Membership

1. Statistical Society of Canada
2. International Chinese Statistical Association
3. American Statistical Association
4. Western North American Region of the International Biometric Society
5. Eastern North American Region of the International Biometric Society
6. International Statistical Institute

# Media Coverage

2023 CANSSI Distinguish Postdoctoral announcement

# Reference

**Joel A. Dubin**
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