

WASAMON JANTAI

Department of Mathematics and Computer Science, Chulalongkorn University, Bangkok 10330, Thailand

Work Phone: 02-218-7140

Email: Wasamon.J@chula.ac.th

EDUCATION

Oregon State University, Corvallis, Oregon

September 2021

Ph.D. in Mathematics

Advisor: Prof. Yevgeniy Kovchegov

Thesis title: Proving Limit Theorems for Associated Random Variables via Stein's Method

Chulalongkorn University, Bangkok, Thailand

July 2016

M.Sc. in Mathematics

Advisor: Prof. Songkiat Sumetkijakan

Thesis title: Generalizations of Schweizer–Wolff measure of Dependence

Khon Kaen University, Khon Kaen, Thailand

March 2013

B.Sc. in Mathematics

First class honors, Gold medal

EMPLOYMENT

Assistant Professor

Department of Mathematics and Computer Science, Chulalongkorn University

October 20, 2025 – present

Lecturer

Department of Mathematics and Computer Science, Chulalongkorn University

March 1, 2022 – October 19, 2025

Graduate Teaching Assistant

Department of Mathematics, Oregon State University

Fall 2018, May 1 – June 15, 2019, September 2019 – September 2021

RESEARCH INTERESTS

My research is primarily focused on Probability and Stochastic Processes, with a particular focus on distributional approximation and Stein's method. I am currently exploring topics related to statistical mechanics, interacting particle systems, and the Gaussian Free Field (GFF).

GRANT AND FELLOWSHIPS

Grants for the International Research Partnership (IRP-2026),

100,000 baht

Faculty of Science, Chulalongkorn University

"Functional Stein's Method for Gaussian Free Fields",

May 1, 2026–April 30, 2027

Grants for Sci Seeding, Faculty of Science, Chulalongkorn University,

120,000 baht

"Poisson Approximation and Zero Bias Transformation for Random Sums" *April 1, 2025–March 31, 2026*

Grants for Development of New Faculty Staff, Ratchadaphiseksomphot Fund, 120,000 baht
“Poisson Approximation and Zero Bias Transformation for Random Sums” July 11, 2023–July 10, 2024

Scholarship from the Royal Government of Thailand,
\$16,200/year +Tuition

September 2016 – September 2021

**Scholarship from the Development and Promotion of Science
and Technology Talents Project (DPST)**, Stipend+Tuition

May 2006 – August 2016

PUBLICATIONS

REFEREED JOURNAL PUBLICATIONS

- J9.** Wasamon Jantai and Nathakhun Wiroonsri, *An approximate zero bias transformation for random sums: Applications to sampling with outliers, auto insurance, and generative AI*, arXiv preprint arXiv:2608.27143, 2026. <https://arxiv.org/abs/2608.27143>.
- J8.** Monchai Kooakachai, Poramin Gaengaew, and Wasamon Jantai, *Proving one-dimensional convergence of trinomial random walks conditioned on end points via Stein’s method*, AIP Conference Proceedings, **3444**, 050005, 2026. <https://doi.org/10.1063/5.0327609>.
- J7.** Nat Yonghint and Wasamon Jantai, *Poisson Approximation for Stop-Loss Metrics of Order 1 and 2*, Sankhya A, **87**, 302–326, 2025. <https://doi.org/10.1007/s13171-025-00399-5>.
- J6.** Wasamon Jantai and Nathakhun Wiroonsri, *On combinatorial central limit theorems with different underlying permutations via approximate zero biasing*, Sankhya A, **87**, 261–301, 2025. <https://doi.org/10.1007/s13171-025-00408-7>.
- J5.** Yuparat Hommai, Monchai Kooakachai, and Wasamon Jantai, *Some Properties of Two-Dimensional Trinomial Random Walks Conditioned on End Points: Annual Meeting in Mathematics 2024*, Thai Journal of Mathematics, vol. 23, no. 1, 111–128, 2025.
- J4.** Nakharin Kabbun, Wasamon Jantai, Duong Than, and Monchai Kooakachai, *Stochastic Models for Breaking Large Bills and Coins: Annual Meeting in Mathematics 2024*, Thai Journal of Mathematics, vol. 23, no. 1, 57–71, 2025.
- J3.** Poramin Gaengaew, Wasamon Jantai, and Monchai Kooakachai, *Some Properties of a Trinomial Random Walk Conditioned on End Points: Annual Meeting in Mathematics 2023*, Thai Journal of Mathematics, vol. 22, no. 1, 203–216, 2024.
- J2.** Wasamon Jantai and Songkiat Sumetkijakan, *Generalizations of the Schweizer-Wolff Measure of Dependence*, TJM (special issue on ICMSA 2015), 89–100, 2016.
- J1.** Wasamon Jantai, *On the Length of a Shortest Spanning Walk*, KKU Science Journal, **41**(1), 112–120, 2013.

TECHNICAL REPORT

- T1.** Bruno Barbosa, Wasamon Jantai, Yevgeniy Kovchegov, and Guochen Xu, *Proving Newman’s CLT via Stein’s Method*, 2021 Deposited on ScholarsArchive@OSU.

THESIS

TH. Wasamon Jantai, Proving Limit Theorems for Associated Random Variables via Stein's Method,
Ph.D. Thesis, Oregon State University, 2021.

INVITED TALK

Special talks: Math & Com Chula series, Chulalongkorn University, Thailand *September 10, 2025*
Topic: Some Properties of Two-Dimensional Trinomial Random Walk Conditioned on End Points

Special talks: Math & Com Chula series, Chulalongkorn University, Thailand *October 16, 2024*
Topic: Some Properties of a Trinomial Random Walk Conditioned on End Points

Math Cu Seminar, Chulalongkorn University, Thailand *November 9, 2022*
Topic: Proving Newman's CLT via Stein's Method

CONFERENCE PRESENTATIONS

European Meeting of Statisticians 2026 (EMS 2026), Lugano, Switzerland
Topic: Approximate Zero-Bias Transformation for Random Sums with Its Applications *August 27, 2026*

The International Conference on Mathematical Sciences and Technology 2024 (MathTech 2024), Amari SPICE Penang, Malaysia
Topic: Proving One-Dimensional Convergence of Trinomial Random Walks
Conditioned on End Points via Stein's Method *December 4, 2024*

The Seminar on Stochastic Processes, Rice University, USA
Topic: Poisson Approximation and Zero Bias Transformation for Random Sums *March 14, 2024*

The 27th Annual Meeting in Mathematics 2023 (AMM 2023), Kasetsart University, Thailand
Topic: Some Properties of a Trinomial Random Walk Conditioned on End Points *June 1, 2023*

Graduate Student Summer Seminar, Oregon State University, USA
Topic: Functional Stein's method *July 27, 2021*

10th World Congress in Probability and Statistics (Online Conference)
Soul National University, South Korea
Topic: Proving Liggett's FCLT via Stein's method *July 22, 2021*

The 11th ICMSA (IMT-GT) 2015, Pattaya, Thailand
Topic: Generalizations of Schweizer-Wolff Measure of Dependence *November, 2015*

The 8th Conference on Science and Technology for Youths, Bangkok, Thailand
Topic: More Forms of the Fundamental Theorem of Calculus
via the Kurzweil-Henstock Integral *March, 2013*

PROFESSIONAL DEVELOPMENT

Summer School, SNAPP (in progress), July 29 – August 28, 2025

Stein’s Method for Queueing Approximations, instructed by Anton Braverman (Northwestern University)
Online (via Zoom), Tuesdays and Thursdays, 11:30am–1:00pm US ET

2025 PIMS-CRM Summer School in Probability - UBC, Vancouver, June 2-27, 2025

- Completed two intensive long courses: “Dimension Dependence of Critical Phenomena in Percolation” (Tom Hutchcroft) and “Heat Kernel Estimates and Harnack Inequalities” (Mathav Murugan).
- Attended mini-courses on random planar maps, random walks on polynomial growth groups, and spectral geometry of Liouville quantum gravity delivered by Nina Holden, Tianyi Zheng, and Nathanael Berestycki.
- Engaged in academic talks to enhance understanding of stochastic models.
- Received full funding for accommodation and participation from the University of British Columbia, with additional support from the Sci Seeding Fund.

CONFERENCES

2021 Southeastern Probability Conference

May 17 – 18 , 2021

Virtual Conference in honor of Elizabeth Meckes

The Online Open Probability School

May 18 – August 13 , 2020

All courses took place online due to Covid-19

The Seminar on Stochastic Processes (SSP)

March 4–7, 2020

Michigan University, East Lansing, MI (Funded participant)

The 41st Midwest Probability Colloquium

October 10–12, 2019

Northwestern University, Evanston, IL (Funded participant)

Seminar on Stochastic Processes

March 13–16, 2019

University of Utah, Salt Lake City, UT (Funded participant)

The 2018 SIAM Annual Meeting (AN18)

July 9–13, 2018

Oregon Convention Center, Portland, OR (Funded participant)

Frontier Probability Days 2018 (FPD’18)

March 29–31, 2018

Oregon State University, Corvallis, OR

The 20th Annual Meeting in Mathematics (AMM 2015)

May 17–29, 2015

Silapakorn University, Nakhon Pathom, Thailand

The 7th International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2014) and 8th International Conference on Computational and Financial Econometrics (CFE 2014)

University of Pisa, Italy

December 6–8, 2014

ACADEMIC SERVICE

Referee/Reviewer for:

- Rocky Mountain Journal of Mathematics

- International Journal of High School Research

Committee Member, Annual Pure and Applied Mathematics (APAM) Conference, Thailand
2022–2025

Interview Committee Member, Faculty of Science, Chulalongkorn University 2025

Judge, Mathematics and Computer Science Project Competition

MWIT Science Festival & Open House 2025, Mahidol Wittayanusorn School, Thailand 2025

- Evaluated high school student research projects in mathematics and computer science.
- Provided feedback and helped select award-winning entries at a national-level science event.

MWIT Science Festival & Open House 2024, Mahidol Wittayanusorn School, Thailand 2024

- Evaluated high school student research projects in mathematics and computer science.
- Provided feedback and helped select award-winning entries at a national-level science event.

DEPARTMENTAL SERVICE

Communications Lead, Department of Mathematics and Computer Science,
Chulalongkorn University 2023–Present

- Served as Assistant Head of Department for Communications and Outreach (2023–early 2025), then continued as the sole person responsible for departmental communications and web presence.
- Designed and managed the department’s official website; oversaw communication strategy, outreach, branding, and public engagement.
- Coordinated with the Faculty of Science and external stakeholders to align department-wide messaging and promotions.

Committee Member, Departmental Service Course Management 2023–2025

- Reviewed examinations, grading criteria, and assessment standards for mathematics service courses in both Thai and international programs.
- Provided academic feedback to ensure clarity, accuracy, and fairness in assessment.
- Collaborated with faculty to improve course content and teaching quality in large-enrollment service courses.

PROFESSIONAL MEMBERSHIPS

Member, **R x TH (Thailand R Local Community supported by R Consortium)**

STUDENTS TRAINEES

UNDERGRADUATE RESEARCH PROJECTS SUPERVISED

Chattraporn Chimpoo, degree awarded in Second Semester 2026

Topic: Random Walks and Brownian Bridge: A Simulation Study in R

Yuparat Hommai, degree awarded in Second Semester 2024

Topic: Some properties of two-dimensional trinomial random walks conditioned on end points

Poramin Gaengaew, degree awarded in Second Semester 2023

Topic: Proving pointwise convergence of a trinomial random walk conditioned on end points via Stein's method

COURSES TAUGHT AT CHULALONGKORN UNIVERSITY

2301103 Calculus I. This course covers limits and continuity, differentiation and its applications, integration and its applications, transcendental functions, techniques of integration, and improper integrals, and introduction to differential equations and their applications.

2301107 Calculus I. This course covers limits and continuity, differentiation and its applications, integration and its applications, transcendental functions, techniques of integration, and improper integrals.

2301108 Calculus II. This course covers sequences and series of real numbers, power series, three-dimensional space, vector-valued functions of one variable, functions of several variables, partial derivatives, polar coordinate system, double integrals, and introduction to differential equations and their applications.

2301115 Calculus for Business I. This course covers limits and continuity, differentiation, integration, exponential functions, logarithmic functions, sequences and series of real numbers, interest and annuity, and applications in business and finance.

2301117 Calculus I. This course covers limits and continuity, differentiation and its applications, integration and its applications, transcendental functions, techniques of integration, and improper integrals.

2301118 Calculus II. This course covers sequences and series of real numbers, power series, three-dimensional space, vector-valued functions of one variable, functions of several variables, partial derivatives, polar coordinate system, double integrals, and introduction to differential equations.

2301286 Probability and Statistics. This course covers basic probability concepts, probability distributions; sampling distributions, estimation, hypothesis testing, analysis of variance, regression and correlation, non-parametric statistics, goodness-of-fit test, and test of independence.

2301381 Probability Theory. This course covers probability spaces; fundamental probability laws, random variables and distribution functions, independence and conditional probability, moment generating functions, characteristic functions, law of large numbers, central limit theorem, random walks, and Markov chains.

2301383 Introduction to Stochastic Processes. This course covers fundamentals of probability theory, discrete-time models, random walks, Markov chains, basic stochastic processes in continuous time, and applications in finance and security markets.

2301489 Workshop in Mathematical Concepts. In depth discussion of mathematical concepts from interesting topics or mathematics literature published in journals.

2301490 Seminar. Presentation and discussion on various topics in mathematics or computer science.

COURSES TAUGHT AT OTHER UNIVERSITIES

IBA1002 (IMT1003) Basic Mathematics for Business, International Program

The Institute of International Studies, Ramkhamhaeng University, Bangkok, Thailand 2024–2025

- Invited to teach in the international undergraduate program based on prior teaching experience and subject matter expertise.

- Delivered instruction to a diverse cohort with emphasis on practical applications in business mathematics.

Mathematics Gifted Program

Patumwan Demonstration School, Srinakharinwirot University, Bangkok, Thailand 2023–2026

- Invited to teach mathematically gifted lower secondary students (Grade 8).
- Delivered engaging instruction focused on problem-solving, logical reasoning, and foundational concepts for advanced mathematics.

TEACHING EXPERIENCE AT OREGON STATE UNIVERSITY

Graduate Teaching Assistant

Oregon State University, Corvallis, OR

• MTH 451/551 Numerical Linear Algebra (Grader)	<i>Summer 2021</i>
• MTH 241 Calculus for Management and Social Science	<i>Winter 2021</i>
• MTH 241 Calculus for Management and Social Science	<i>Fall 2020</i>
• MTH 256 Applied Differential Equations	<i>Summer 2020</i>
• MTH 231 Elements Discrete Mathematics	<i>Spring 2020</i>
• MTH 231 Elements Discrete Mathematics	<i>Winter 2020</i>
• MTH 254 Vector Calculus I	<i>Fall 2019</i>
• MTH 241 Calculus for Management and Social Science	<i>May 1–June 15, 2019</i>
• MTH 254 Vector Calculus I	<i>Fall 2018</i>

AWARDS

Outstanding Performance in Coursework Award *2019 – 2020*
Department of Mathematics, Oregon State University

Graduate Student Honorable Mention in Coursework *2016 – 2017*
Department of Mathematics, Oregon State University

Award for the Highest GPA *2010, 2013 and 2017*
The Professor Dr. Tab Nilanidhi Foundation, Thailand

Outstanding Academic Performance Award *2012*
Faculty of Science, Khonkaen University, Thailand

PROFESSIONAL SKILLS

Computer Languages MATLAB, C# language, R language, $\text{\LaTeX}$, and Microsoft Office