Tekendra Bhatt

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Education

- **Ph.D. in Mathematics (Probability & Stochastic Processes)** Expected Spring 2026
  University of North Texas, Denton, TX
  Dissertation: Estimation and Statistical Inference for Hawkes Processes
  Advisor: Dr. Kai-Sheng Song.
- **M.A. in Economics** 2012
  Kumaun University, Nainital, India.
- **B.Ed. in Mathematics** 2006
  Tribhuvan University, Kathmandu, Nepal.
- **M.A. in Mathematics** 2004
  Tribhuvan University, Kathmandu, Nepal.
- **B.A. in Mathematics & Economics** 2002
  Tribhuvan University, Kathmandu, Nepal.

Research Interests

- **Probability Theory:** Self-exciting point processes, oscillatory Hawkes processes, ergodic theory of stochastic processes, moment and cumulant analysis.
- **Stochastic Processes:** Temporal point processes, limit theorems for dependent data, model stability and inference for complex temporal dependencies.
- **Statistical Inference:** Maximum likelihood estimation for point processes, asymptotic theory, Fisher information analysis, model diagnostics and validation.
- **Computational Statistics:** Efficient simulation algorithms, statistical computing in R, reproducible research workflows, open-source software development.
- **Interdisciplinary Applications:** Temporal modeling in engineering systems, financial mathematics, neuroscience, environmental statistics.

Research Experience

Ph.D. Candidate 2022–Present
University of North Texas, Department of Mathematics

- Developed a novel class of oscillatory Hawkes processes with damped kernels, extending classical point process theory.
- Established theoretical foundations, including stability conditions, ergodic properties, and asymptotic inference guarantees.
- Implemented a comprehensive computational framework in R with efficient simulation, estimation, and diagnostic tools.
- Applied methodological innovations to high-frequency financial data.

- Prepared multiple manuscripts on theory, computation, and applications of oscillatory Hawkes processes, with a view toward submission to peer-reviewed journals in probability and statistics.

Publications and Manuscripts

- **Non-monotonic Hawkes Processes: Theory, Inference, and Applications**
  (manuscript in preparation)
- **Moment Structure and Inference for Oscillatory Point Processes**
  (manuscript in preparation)

Teaching Experience

Teaching Fellow / Teaching Assistant 2018–Present
University of North Texas, Denton, TX

Designed and taught undergraduate Precalculus in person and fully online *(Instructor of Record in multiple terms since 2021).*

- Led recitation and support sessions for multi-section Calculus I and II, emphasizing active learning and problem-based practice.
- Developed organized course structures with complete Canvas shells published before each term, providing clear timelines and expectations.
- Used diverse assessment methods (WebAssign, Canvas quizzes, written exams) with transparent grading criteria.
- Provided proactive student support through flexible office hours, rapid email responses, and early intervention for struggling students.
- Supported multi-section courses, including Real Analysis, Differential Equations, and the Calculus sequence.
- Tutored undergraduate students in a wide range of mathematics courses at the University's Math Lab.
- Worked as a grader for upper-division undergraduate courses including Real Analysis, Differential Equations, Vector Analysis, and Numerical Analysis.
- Consistently received high student evaluations; recognized with the Outstanding Teaching Fellow Award (2023).
- Course records and evaluations available at *UNT Faculty Profile*.

Assistant Professor 2015–2018
Far-Western University, Nepal

- Taught graduate and undergraduate courses, including Calculus, Real Analysis, Topology, Linear Algebra, and Abstract Algebra.
- Coordinated examination development and grading in collaboration with the Examination Office.

Mathematics Faculty 2010–2015
Brixton College, Nepal

- Instructed Business Mathematics and Statistics for the Bachelor of Business Administration (BBA) program.

Lecturer and Mathematics Teacher 2010–2013
Kanchan Vidya Mandir College and Secondary School, Nepal

- Taught undergraduate Business Statistics and high-school mathematics (Grades 11–12).

Mathematics Faculty 2005–2010
Bal Jagritee College, Nepal

- Taught Real Analysis, Linear Algebra, and Calculus for the B.Ed. in Mathematics program.

Teaching Interests

Core Undergraduate Curriculum: Calculus I–III, Linear Algebra, Differential Equations, Discrete Mathematics, Introduction to Proofs, Elementary Functions / Precalculus.

Statistics & Applied Mathematics: Introductory Statistics, Probability, Mathematical Statistics, Statistical Computing with R, Stochastic Processes, Mathematical Modeling, Numerical Methods, Optimization, Introductory R Programming.

Advanced & Theoretical Mathematics: Real Analysis I–II, Abstract Algebra I–II, Complex Analysis, Topology, Modern Geometry, Vector Calculus.

Awards and Honors

- Outstanding Teaching Fellow Award, Department of Mathematics, UNT 2023
- Nominee, University-wide Outstanding Teaching Fellow Award, UNT 2023
- Academic Excellence Award, Department of Mathematics, UNT 2022

Grants and Scholarships

- Summer Research Assistant Award, College of Science, UNT 2025, 2024
- Texas Public Education Grant—International (TPEG-I), UNT 2024
- Tuition Benefit Program, Graduate School, UNT 2018–2025
- R. Mauldin Scholarship, Department of Mathematics, UNT 2021–2022

Technical & Teaching Tools

- **Programming:** R, LaTeX.
- **Workflows:** Reproducible research with R Markdown.
- **Teaching Technology:** Mathematica, Canvas, WebAssign, Respondus, Desmos, GeoGebra.

References

Dr. Kai-Sheng Song Professor, Department of Mathematics, University of North Texas
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Dr. Joseph Iaia Associate Professor, Department of Mathematics, University of North Texas
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Dr. Matthew Dulock Principal Lecturer, Department of Mathematics, University of North Texas
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