# ZIJIAN CHEN

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Address: 4720 Medical Sciences Center, 1300 University Avenue, Madison, WI

## EDUCATION

**Boston University**
Ph.D. student in Electrical Engineering — 2023 - Now
Advisor: Archana Venkataraman

**University of Wisconsin - Madison**
M.A. in Mathematics (with concentration in probability & PDEs) — 2022 - 2023
Visiting Undergraduate student in Mathematics — 2021 - 2022
Advisor: Hao Shen

**East China Normal University - Shanghai Jiao Tong University**
B.Sc. in Statistics — 2018 - 2022
Bachelor minor: Mathematics — 2020 - 2022

## RESEARCH AND PROFESSIONAL EXPERIENCE

### Research Assistantship

**Neural Systems Analysis Laboratory**, Boston MA — 2023 - Now
Faculty supervisor: Archana Venkataraman

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**Moo K Chung's Group**, Madison WI — 2021 - 2023
Faculty supervisor: Moo K Chung

- *Wasserstein distance and its application in neural anatomy*
- *Topological data analysis*

**Jin Xu's Group**, Shanghai, PRC — 2019 - 2021
Faculty supervisor: Jin Xu

- *Clinical trial design and analysis*

## PUBLICATIONS

[4] **Chen, Z.**, Das S., Chung, M.K. 2022, Sulcal Pattern Analysis with the Wasserstein Distance. *accepted in ISBI 2023*

[3] Dakurah, S., Anand, D.V., **Chen, Z.**, Chung, M.K. 2022, Modeling Cycles in Brain Networks Using Hodge Laplacian, Medical Image Computing and Computer Assisted Intervention - MICCAI 2022. Lecture Notes in Computer Science, vol 13431. Springer, Cham. (received travel award).

[2] Chung, M.K., **Chen, Z**. 2022, Embedding of Functional Human Brain Networks on a Sphere. https://arxiv.org/abs/2204.03653

[1] Liu, T., **Chen, Z.**, Xu, J. 2021, Epidemiological characteristics and incubation period of SARS-CoV-2 during the 2020-2021 winter pandemic wave in north China: an observational study. J Med Virol.2021;1-6.

## CONFERENCES AND TALKS

### Invited talks

2023 **Sulcal Pattern Matching with the Wasserstein Distance**,
ISBI 2023 Special section *Wasserstein Distance in Biomedical Imaging*, in Cartagena de Indias, Columbia.
Invited by Moo K. Chung.

2021 **A review of sample size calculation in Phase III SARS-CoV-2 vaccine clinical trials**,
Shanghai Biostatistics Forum (SBF) Q3 Event, 2021.
Invited by Jin Xu.

### Poster presentations

2023 **Sulcal Pattern Matching with the Wasserstein Distance**,
ISBI 2023, Cartagena de Indias, Columbia.

2022 **Multiscale Representation of Brain Networks In The Hyperbolic Space**,
2022 Computation and Informatics in Biology and Medicine Annual Retreat, Univ of Wisconsin - Madison.

### Others

2023 **Lecture: Simplical homology and persistent homology**,
ISBI 2023 Tutorial section: *Topological Data Analysis for Biomedical Imaging Data*
Help prepare lecture materials.

## TEACHING AND MENTORING

### Projects mentored in UW Madison

- Undergraduate Research Project — Feb-May. 2022
  Project name: Vectors of smallest slope for translation surfaces.
- Directed Reading Program — Feb-May. 2022
  Topic: Probabilistic Perspectives in Machine Learning.

### Teaching Assistantship/Graders

- Course: *MATH 320: Linear Algebra and Differential Equations*. Univ of Wisconsin - Madison — Fall 2021
  Responsibilities: grading weekly homework and two exams (90 students).
- Course: *Biostatistics*. East China Normal University — Summer Semester 2021
  Responsibilities: instructing computer lab session (20 credit hours), writing and grading homework, recitation and holding office hours.

## FELLOWSHIPS AND AWARDS

### Fellowships

- Distinguished Electrical Engineering Fellowship ($40,000), Boston University — 2023
- ECNU Outstanding Student Fellowship (CNY $3500, CNY $1000∗2). — 2019, 2020, 2021

### Competetion awards

- National First Prize in Chinese Undergraduate Mathematical Modeling Contest. — Sep. 2020
- Finalist (top 1% worldwide) in Interdisciplinary Contest in Modeling. — Feb. 2020
- National Third Prize in Chinese Undergraduate Mathematics Competition. — Nov. 2019

## SKILLS

Language: Cantonese(native speaker), Mandarin(fluent), English(proficient)
Software: MATLAB, Mathematica, R
Programming Language: MATLAB $\approx$ Python $>$ R $>$ C++

## REFERENCES

Archana Venkataraman
Associate Professor of Electrical and Computer Engineering
Boston University
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Moo K. Chung
Associate Professor of Biostatistics and Medical Informatics
University of Wisconsin Madison
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Jin Xu
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East China Normal University
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