

# Tianyi Chen

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## Education

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| <b>Johns Hopkins University</b><br><i>Ph.D. candidate at Applied Math and Statistics Department</i> | Baltimore, Maryland<br>Sep 2021- May 2026 (Expected) |
| <b>Johns Hopkins University</b><br><i>Master of Science in Engineering</i>                          | Baltimore, Maryland<br>Aug 2019 - May 2021           |
| <b>Renmin University of China</b><br><i>Bachelor of Science</i>                                     | Beijing, China<br>Sep 2015 - June 2019               |

## Publications and Preprints

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- Helm, H., **Chen, T.**, McGuinness, H., Lee, P., Duderstadt, B., & Priebe, C. E. (2025). *Toward a digital twin of U.S. Congress*. arXiv: 2505.00006.
- Chen, T.**, Lubberts, Z., Athreya, A., Park, Y., & Priebe, C. E. (2024). *Euclidean mirrors and first-order changepoints in network time series*. arXiv: 2405.11111. Major revision at Electronic Journal of Statistics.
- Chen, T.**, Park, Y., Saad-Eldin, A. et al (2023). *Discovering a change point and piecewise linear structure in a time series of organoid networks via the iso-mirror*. Applied Network Science 8, 45.
- Priebe, C. E., Shen, C., Huang, N., & **Chen, T.** (2021). *A simple spectral failure mode for graph convolutional networks*. IEEE Transactions on Pattern Analysis and Machine Intelligence.
- Wang, F., **Chen, T.**, Chang, Q., Kao, Y. W., Li, J., Chen, M., ... & Shia, B. C. (2021). *Respiratory diseases are positively associated with PM2.5 concentrations in different areas of Taiwan*. PLOS One, 16(4), e0249694.
- Chen, T.**, Chen, Y., Gao, J., Gao, P., Moon, J. H., Ren, J., ... & Woolf, T. B. (2021). *Machine learning to summarize and provide context for sleep and eating schedules*. bioRxiv, 2020-12.

## Research In Progress

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- Human Brain Organoid Connectome Analysis** May 2023-Present  
Collaboration with JHU Center for Alternatives to Animal Testing and Applied Physics Laboratory
- Developed a pipeline that processes time series of brain organoid Micro Electrode Array (MEA) recording data into Euclidean representations.
  - Explored the connectome’s dynamic evolution over time.

## Teaching Experience

### Teaching Assistant

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- Course “Statistical Pattern Recognition Theory & Methods” Spring 2025
  - Course “Statistics Theory” Fall 2021, Fall 2024
  - Course “Time Series Analysis” Spring 2024
  - Course “Applied Statistics and Data Analysis” Fall 2020, Fall 2022, Fall 2023
  - Course “Applied Statistics and Data Analysis 2” Spring 2021
  - Course “Intro to Optimization” Spring 2020

### Instructor

- Master’s Program Statistics Review Summer 2023, Summer 2024

### Talks

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| “Vertex alignment and first-order changepoint in time series of graphs.”<br><i>Science of Autonomy Annual Program Review, Virtual session</i>                      | Aug 13 2025   |
| “Vertex alignment and first-order changepoint in time series of graphs.”<br><i>Joint Statistical Meeting, Nashville</i>                                            | Aug 4 2025    |
| “Toward a digital twin of US Congress.”<br><i>Symposium on Data Science and Statistics, Salt Lake City</i>                                                         | April 30 2025 |
| “Vertex alignment and first-order changepoint in time series of graphs”<br><i>JHU Applied Math and Statistics department Student Seminar</i>                       | March 25 2025 |
| “Euclidean mirror and first-order changepoint in network time series”<br><i>SIAM Conference on Mathematics of Data Science, Poster session, Atlanta</i>            | Oct 23 2024   |
| “Euclidean mirror and first-order changepoint in network time series”<br><i>38th New England Statistics Symposium, invited talk, University of Connecticut</i>     | May 20 2024   |
| “Organoid intelligence and time series of networks.”<br><i>JHU Applied Math and Statistics department Student Seminar</i>                                          | Sep 26 2023   |
| “A simple example for understanding swarms.”<br><i>JHU Applied Math and Statistics department Student Seminar</i>                                                  | Oct 11 2022   |
| “Understanding swarm: manifold learning on spectral representation of time series of graphs.”<br><i>JHU Applied Math and Statistics department Student Seminar</i> | Oct 19 2021   |

### Awards and Fellowships

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| – Nominated as Seibel scholar by Applied Mathematics and Statistics Department                                                           | June 2025                                                  |
| – IMSI ”Statistics Meets Tensors” workshop travel fund                                                                                   | May 2025                                                   |
| – Honorable Mention Audience Choice Award at the DSAI End of Semester Social for presentation of “Toward a digital twin of US Congress.” | May 2025                                                   |
| – Teaching Fellow Recognition Award                                                                                                      | May 2025                                                   |
| – Duncan Fund for travel                                                                                                                 |                                                            |
|                                                                                                                                          | May 2022, May 2024, Aug 2024, Oct 2024, May 2025, Aug 2025 |
| – Mathematical Institute of Data Science Fellowship                                                                                      | Spring 2022                                                |

### Social Activities

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|----------------------------------------------------------------------------|---------------------|
| Served as AMS diversity committee                                          | Sep 2024 - May 2025 |
| Organized AMS special seminar: Converging Perspectives                     | April 4 2025        |
| Helped organize and attended 7th and 9th International Forum on Statistics | May 2016, Jul 2018  |