

# Eric J. Verbeke

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🐦 @eric\_verbeke

## Research Positions

- 2021 - present    📌 **Princeton University**, Postdoctoral Research Associate  
Program in Applied and Computational Mathematics
- summer 2024    📌 **The University of Tokyo**, JSPS Fellow  
Graduate School of Medicine
- 2015-2016    📌 **National Institute for Standards and Technology**, Guest Researcher  
Molecular and BioPhotonics group



## Education

- 2016 – 2021    📌 **Ph.D., University of Texas at Austin**, Biochemistry
- 2011 – 2015    📌 **B.S., University of Colorado at Boulder**, Chemical and Biological Engineering

## Publications

🌐 [Link to my Google Scholar page](#)



- 1 T. Muller, A. L. Duncan, **E. J. Verbeke**, and J. Kileel, “Algebraic constraints and algorithms for common lines in cryo-EM,” *Biological Imaging*, vol. 4, e9, 2024, ISSN: 2633-903X. 📄 DOI: 10.1017/S2633903X24000072.
- 2 **E. J. Verbeke**, M. A. Gilles, T. Bendory, and A. Singer, “Self Fourier shell correlation: Properties and application to cryo-ET,” *Communications Biology*, vol. 7, no. 1, p. 101, Jan. 2024, ISSN: 2399-3642. 📄 DOI: 10.1038/s42003-023-05724-y.
- 3 A. Zhang, O. Mickelin, J. Kileel, *et al.*, “Moment-based metrics for molecules computable from cryogenic electron microscopy images,” *Biological Imaging*, vol. 4, e3, Feb. 2024, ISSN: 2633-903X. 📄 DOI: 10.1017/S2633903X24000023.
- 4 M. J. Lucas, H. S. Pan, **E. J. Verbeke**, *et al.*, “Cross-Seeding Controls A $\beta$  Fibril Populations and Resulting Functions,” *The Journal of Physical Chemistry B*, vol. 126, no. 11, pp. 2217–2229, 2022. 📄 DOI: 10.1021/acs.jpccb.1c09995.
- 5 W. Sae-Lee, C. L. McCafferty, **E. J. Verbeke**, *et al.*, “The protein organization of a red blood cell,” *Cell Reports*, vol. 40, no. 3, p. 111103, 2022. 📄 DOI: 10.1016/j.celrep.2022.111103.
- 6 M. J. Lucas, H. S. Pan, **E. J. Verbeke**, L. J. Webb, D. W. Taylor, and B. K. Keitz, “Functionalized Mesoporous Silicas Direct Structural Polymorphism of Amyloid  $\beta$  Fibrils,” *Langmuir*, vol. 36, no. 26, pp. 7345–7355, 2020. 📄 DOI: 10.1021/acs.langmuir.0c00827.
- 7 C. L. McCafferty, **E. J. Verbeke**, E. M. Marcotte, and D. W. Taylor, “Structural Biology in the Multi-Omics Era,” *Journal of Chemical Information and Modeling*, vol. 60, no. 5, pp. 2424–2429, May 2020. 📄 DOI: 10.1021/acs.jcim.9b01164.
- 8 **E. J. Verbeke**, Y. Zhou, A. P. Horton, A. L. Mallam, D. W. Taylor, and E. M. Marcotte, “Separating distinct structures of multiple macromolecular assemblies from cryo-EM projections,” *Journal of Structural Biology*, vol. 209, no. 1, p. 107416, 2020. 📄 DOI: 10.1016/j.jsb.2019.107416.
- 9 X. Yi, **E. J. Verbeke**, Y. Chang, D. J. Dickinson, and D. W. Taylor, “Electron microscopy snapshots of single particles from single cells,” *Journal of Biological Chemistry*, vol. 294, no. 5, pp. 1602–1608, 2019. 📄 DOI: 10.1074/jbc.RA118.006686.

- 10 E. J. Verbeke, A. L. Mallam, K. Drew, E. M. Marcotte, and D. W. Taylor, "Classification of Single Particles from Human Cell Extract Reveals Distinct Structures," *Cell Reports*, vol. 24, no. 1, 259–268.e3, 2018.  DOI: 10.1016/j.celrep.2018.06.022.
- 11 K. P. Wall, M. Pagratis, G. Armstrong, *et al.*, "Molecular Determinants of Tubulin's C-Terminal Tail Conformational Ensemble," *ACS Chemical Biology*, vol. 11, no. 11, pp. 2981–2990, 2016.  DOI: 10.1021/acscchembio.6b00507.



## Teaching Experience

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### Princeton University (Lecturer)

- Spring 2025  SML 301 - Data Intelligence: Modern Data Science Methods  
Fall 2024  SML 310 - Research Projects in Data Science (secondary instructor)

### University of Texas at Austin (Teaching Assistant)

- Fall 2018  BCH 370 - Physical Methods of Biochemistry  
Fall 2017  BCH 370 - Physical Methods of Biochemistry

## Invited Talks

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- Jun 2024 - IPAM Conference on Computational Microscopy, Lake Arrowhead, CA  
*Fast Alignment of Images Using Optimal Transport*
- Nov 2022 - IPAM Conference on Computational Microscopy, UCLA  
*Cryo-Electron Microscopy and Beyond*
- Jun 2022 - Gordon Research Conference for Three Dimensional Electron Microscopy, Castelldefels, Spain  
*Don't Purify in Vein! Structural Insights from Red Blood Cell Lysate*
- Jun 2019 - Gordon Research Conference for Three Dimensional Electron Microscopy, Hong Kong, China  
*Separating distinct structures of multiple macromolecular assemblies from cryo-EM projections*
- Sep 2017 - UT Austin ICMB Annual Conference, Horseshoe Bay, Texas  
*Visualizing the Human Complexome*

## Awards

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- 2024-2025  Princeton University DataX Postdoctoral Fellowship  
2024  Japan Society for Promotion of Science Summer Fellowship  
2020-2021  University Graduate Continuing Fellowship, University of Texas at Austin  
2019  Gordon Research Conference - Travel Award  
2018  David Bruton Jr. Graduate School Fellowship, University of Texas at Austin  
2014  Undergraduate Research Opportunity Program, University of Colorado at Boulder  
2013  HHMI Undergraduate Research Fellowship, University of Colorado at Boulder

## Professional Service

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### Peer Review

- Structure, Cell Press, July 2022

## Skills

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Coding



Python, R, LaTeX