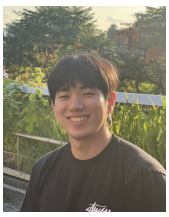
Minoh Jeong, Ph.D.

minohj@umich.edu +1 (651) 795-8880 https://minosota.github.io
LinkedIn Google Scholar



Research Interest

(Multi-modal) Representation Learning, Diffusion Model, Statistical Signal Processing, Information Theory.

Professional Experience

2025 – · · · · **Postdoctoral affiliate.** Michigan Institute for Data and AI in Society (MIDAS).

2024 – · · · · **Postdoctoral research fellow.** EECS, University of Michigan.
- Advisor: Prof. Alfred Hero
- (Multi-modal) Representation learning.
- Statistical modeling for microbiome.
- Diffusion model based inverse problem solving.

2023 – 2023 **Research intern.** Nokia Bell Labs, Murray Hill, NJ.
- Submitted a patent.
- Received **the outstanding student research award**

Education

2019 – 2024 **Ph.D., University of Minnesota,** ECE.
Advisor: Prof. Martina Cardone
Thesis title: *Data Permutation Recovery from Noisy Data: Error Probability and Privacy.*

2017 – 2019 **M.Sc. Ajou University**, ECE.
Advisor: Prof. Songnam Hong
Thesis title: *Efficient decoding methods for polar codes.*

Research Publications

Preprint

1. **M. Jeong** and A. Hero, *"Generalizing supervised contrastive learning: A projection perspective"*, arXiv preprint arXiv:2506.09810.
2. **M. Jeong**, S. Kim, and A. Hero, *"Probabilistic variational contrastive learning"*, arXiv preprint arXiv:2506.10159.
3. **M. Jeong**, M. Namgung, Z. M. Kim, D. Kang, Y.-Y. Chiang, and A. Hero, *"Anchors aweigh! sail for optimal unified multi-modal representations"*, arXiv preprint arXiv:2410.02086.

Journal Articles

1. **M. Jeong**, A. Dytso, and M. Cardone, "A comprehensive study on Ziv-Zakai lower bounds on the MMSE," *IEEE Transactions on Information Theory*, vol. 71, no. 4, pp. 3214–3236, 2025. DOI: 10.1109/TIT.2025.3541987.
2. **M. Jeong**, A. Dytso, and M. Cardone, "Retrieving data permutations from noisy observations: Asymptotics," *IEEE Transactions on Information Theory*, vol. 70, no. 4, pp. 2999–3017, 2024. DOI: 10.1109/TIT.2023.3348032.

3. M. Kim, **M. Jeong**, M. Cardone, and J. Choi, "Design of a spiral coil for high-frequency wireless power transfer systems using machine learning," *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, vol. 5, no. 1, pp. 193–202, 2024. DOI: 10.1109/JESTIE.2023.3317797.

4. **M. Jeong**, A. Dytso, and M. Cardone, "Ranking recovery under privacy considerations," *Transactions on Machine Learning Research*, 2022, ISSN: 2835-8856. URL: https://openreview.net/forum?id=2EOVIvRXlv.

5. **M. Jeong**, A. Dytso, and M. Cardone, "Gradient of error probability of M-ary hypothesis testing problems under multivariate gaussian noise," *IEEE Signal Processing Letters*, vol. 27, pp. 1909–1913, 2020. DOI: 10.1109/LSP.2020.3031487.

6. **M. Jeong**, A. Dytso, M. Cardone, and H. V. Poor, "Recovering data permutations from noisy observations: The linear regime," *IEEE Journal on Selected Areas in Information Theory*, vol. 1, no. 3, pp. 854–869, 2020. DOI: 10.1109/JSAIT.2020.3041697.

7. **M.-O. Jeong** and S.-N. Hong, "SC-Fano decoding of polar codes," *IEEE Access*, vol. 7, pp. 81 682–81 690, 2019. DOI: 10.1109/ACCESS.2019.2924016.

8. S.-N. Hong and **M.-O. Jeong**, "An efficient construction of rate-compatible punctured polar (RCPP) codes using hierarchical puncturing," *IEEE Transactions on Communications*, vol. 66, no. 11, pp. 5041–5052, 2018. DOI: 10.1109/TCOMM.2018.2854183.

Conference Proceedings

1. **M. Jeong**, M. Cardone, and A. Dytso, "Data-driven estimation of the false positive rate of the Bayes binary classifier via soft labels," in *2024 IEEE International Symposium on Information Theory (ISIT)*, 2024, pp. 368–373. DOI: 10.1109/ISIT57864.2024.10619564.

2. M. Milanian, **M. Jeong**, and M. Cardone, "On the secrecy capacity of 1-2-1 atomic networks," in *2024 IEEE International Symposium on Information Theory (ISIT)*, 2024, pp. 166–171. DOI: 10.1109/ISIT57864.2024.10619394.

3. **M. Jeong**, M. Cardone, and A. Dytso, "Demystifying the optimal performance of multi-class classification," in *Advances in Neural Information Processing Systems (NeurIPS)*, vol. 36, 2023, pp. 31 638–31 664.

4. **M. Jeong**, A. Dytso, and M. Cardone, "Functional properties of the Ziv-Zakai bound with arbitrary inputs," in *2023 IEEE International Symposium on Information Theory (ISIT)*, 2023, pp. 2087–2092. DOI: 10.1109/ISIT54713.2023.10206849.

5. M. Kim, **M. Jeong**, M. Cardone, and J. Choi, "Optimization of spiral coil design for wpt systems using machine learning," in *2023 IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2023, pp. 822–828. DOI: 10.1109/APEC43580.2023.10131149.

6. **M. Jeong**, M. Cardone, and A. Dytso, "On the ranking recovery from noisy observations up to a distortion," in *2022 IEEE International Symposium on Information Theory (ISIT)*, 2022, pp. 1993–1998. DOI: 10.1109/ISIT50566.2022.9834780.

7. M. Kim, **M. Jeong**, M. Cardone, and J. Choi, "Characterization of the quality factor in spiral coil designs for high-frequency wireless power transfer systems using machine learning," in *2022 IEEE 23rd Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2022, pp. 1–8. DOI: 10.1109/COMPEL53829.2022.9830005.

8. **M. Jeong**, A. Dytso, and M. Cardone, "Retrieving data permutations from noisy observations: High and low noise asymptotics," in *2021 IEEE International Symposium on Information Theory (ISIT)*, 2021, pp. 1100–1105. DOI: 10.1109/ISIT45174.2021.9518137.

9 **M. Jeong**, A. Dytso, M. Cardone, and H. V. Poor, "Recovering structure of noisy data through hypothesis testing," in *2020 IEEE International Symposium on Information Theory (ISIT)*, 2020, pp. 1307–1312. DOI: 10.1109/ISIT44484.2020.9174229.

Presentations

1 **M. Jeong**, A. Dytso, and M. Cardone, *"An overview of permutation recovery problems"*, 2022 56th Annual Conference on Information Sciences and Systems (CISS), 2022.

2 **M. Jeong**, *"Permutation recovery by linear decoding: Optimality and asymptotics"*, 2021 IEEE North American School of Information Theory (NASIT), 2021.

Skills

Languages — English, Korean.

Coding — Python, Matlab, R, Mathematica, LaTeX

Miscellaneous Experience

Awards and Achievements

2023 — **Travel Grant**, Advances in Neural Information Processing Systems (NeurIPS), 2023

Outstanding Student Research Award, Nokia Bell Labs, 2023

2022 — **Travel Grant**, 2022 IEEE International Symposium on Information Theory (ISIT), 2022

2020 — **Winner of ISIT 2020 Student Video Exposition**, IEEE, https://youtu.be/M9GjCSUUM5A.

Program committee / Reviewer

Journal — TMLR, IEEE TCOM, Signal Processing, IEEE TGCN, IEEE TCSVT, IEEE TVT, IEEE TIT, IEEE ACCESS

Conference — **NeurIPS** (2023, 2024, 2025); **ICML** (2023, 2024, 2025); **ICLR** (2024, 2025); **AISTATS** (2025); **ISIT** (2024, 2025); **AAAI** (2025, 2026).

References

Available on Request