

Minoh Jeong

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Education

University of Minnesota - Twin Cities

Ph.D. student in Electrical Engineering
- Advisor: Prof. Martina Cardone

Minneapolis, MN

Aug. 2019 – Present

Ajou University

M.S in Electrical and Computer Engineering
- Advisor: Prof. Songnam Hong
- Thesis: Efficient decoding methods for polar codes

Suwon, Korea

Mar. 2017 – Feb. 2019

Inha University

B.S in Electronic Engineering

Incheon, Korea

Mar. 2011 – Feb. 2017

Research Interest

Statistical Signal Processing, Differential Privacy, Machine Learning, Coding Theory (Channel coding), Information Theory, Optimization.

Publications

Journal Articles

1. **M. Jeong**, A. Dytso and M. Cardone, "Retrieving Data Permutations from Noisy Observations: Asymptotics," Submitted to *Transactions on Information Theory*, 2022.
2. M. Kim, **M. Jeong**, M. Cardone and J. Choi, "Design of a Spiral Coil for High-Frequency Wireless Power Transfer Systems Using Machine Learning," in *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, Sep. 2023.
3. **M. Jeong**, A. Dytso and M. Cardone, "Ranking Recovery under Privacy Considerations," in *Transactions on Machine Learning Research*, July 2022.
4. **M. Jeong**, A. Dytso, M. Cardone and H. V. Poor, "Recovering Data Permutations From Noisy Observations: The Linear Regime," in *IEEE Journal on Selected Areas in Information Theory*, Nov. 2020.
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*, 2020.
6. **M.-O. Jeong** and S.-N. Hong, "SC-Fano Decoding for Polar Codes," *IEEE Access*, June 2019.
7. S.-N. Hong and **M.-O. Jeong**, "An Efficient Construction of Rate-Compatible Punctured Polar (RCPP) Codes Using Hierarchical Puncturing," in *IEEE Transactions on Communications*, Nov. 2018.

International Conference Proceedings

1. **M. Jeong**, M. Cardone, and A. Dytso, "Demystifying the Optimal Performance of Multi-Class Classification," Accepted to *Advances in Neural Information Processing Systems (Neurips)*, 2023.
2. **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)*, Taiwan, June 2023.
3. 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.
4. **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)*, Finland, June 2022.
5. 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.
6. **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)*, Melbourne, Victoria, Australia, July 2021.
7. **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)*, Los Angeles, CA, July 2020.
8. **M.-O. Jung** and S.-N. Hong, "Construction of Rate-Compatible Punctured Polar Codes Using Hierarchical Puncturing," in *2018 IEEE International Symposium on Information Theory (ISIT)*, Vail, CO, June 2018.

Presentations

1. **M. Jeong**, A. Dytso and M. Cardone, "An Overview of Permutation Recovery Problems," in *2022 56th Annual Conference on Information Sciences and Systems (CISS)*, Mar. 2022.
2. **M. Jeong**, "Permutation Recovery by Linear Decoding: Optimality and Asymptotics," in *2021 IEEE North American School of Information Theory (NASIT)*, Online, June 2021.

Experience

Work experience

6G Radio Systems Intern

Research intern

- Joint channel estimation and decoding
- Joint MIMO detection and decoding

Nokia Bell Labs

June 2023 – Aug. 2023

ROMAD (Radio Operator Maintainer and Driver)

Staff sergeant

- Squad leader
- Operation on the radio system to help tactical vehicles communicate with combat planes
- Worked on driving Tactical Vehicles

Republic of Korea Air Force

Mar. 2012 – Mar. 2014

Research Assistant.....

University of Minnesota - Twin Cities

Research Assistant, Dept of CSE

- Research on Noisy Order Statistics
- Research on Optimization
- Research on Differential privacy

Minneapolis, MN

Aug. 2019 – Present

Ajou University

Research Assistant, Information System Lab., Dept of ECE

- Research on Coding Theory (Polar codes)
- Research on Machine/Deep Learning for Wireless Communication

Suwon, Korea

Mar. 2017 – Feb. 2019

Honors and Awards

Outstanding Student Research Award, Internship program, Nokia Bell Labs, 2023

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

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

Technical Skills

Programming Languages: MATLAB, Python, R

Machine Learning / Big Data: PyTorch, PySpark, SQL

Tools: LaTeX