

ECE 6970 - Paper Reading and Presentation Assignments

Instructions: The paper reading + presentation assignments are performed in pairs (triples will be allowed depending on number of attendees). Please follow these instructions for selecting your paper.

- I. Rank the papers in the list on the next page according to your preference.
- II. Log into the Doodle link that will be made available on the course website (<http://people.ece.cornell.edu/zivg/ECE6970.html>) on Wednesday, Sep. 4th, at 5:00pm and mark your selection.
- III. Pairs will be assigned automatically based on choices of papers.
- IV. Each presentation assignment will encompass a full lecture (1:15 hours), with exact dates to be specified in class.

Notes:

- The Doodle poll is set so that up to 2 students can select the same paper. If all spots are taken by the time you try to make your selection, please write the course instructor an email (goldfeld@cornell.edu) and mention your top 3 choices. An assignment will be set manually in such cases.
- Upon the instructor's authorization, it is possible to present a related paper that is not on the list. Students who would like to do that should contact the course instructor via email (goldfeld@cornell.edu) before Monday, Sep. 2nd, at noon. In your email mention the proposed paper, explain how it relates to the course material and the reason for your preference.
- Note that paper number [7] below will be split into two presentation assignment (the 1st on optimal transport and the 2nd on f-divergences and differential entropy estimation). This will be reflected in the Doodle poll.
- Additional papers may become available once those in the list are all assigned.

List of Papers:

- [1] I. Goodfellow, J. Pouget-Abadie, M. Mirza, B. Xu, D. Warde-Farley, S. Ozair, A. Courville and Y. Bengio, "Generative adversarial nets," In Proceedings of *Advances in Neural Information Processing Systems (NIPS)*, 2014.
- [2] M. Arjovsky, S. Chintala and L. Bottou, "Wasserstein GAN," In Proceedings of the *International Conference on Machine Learning (ICML)*, 2017.
- [3] R. M. Dudley, "The speed of mean Glivenko-Cantelli convergence," *The Annals of Mathematical Statistics*, Vol. 40, No. 1, pp. 40-50, 1969.
- [4] M. Cuturi "Sinkhorn Distances: Lightspeed Computation of Optimal Transportation Distances," *Advances in Neural Information Processing Systems (NIPS)*, 2013.
- [5] A. Genevay, L. Chizat, F. Bach, M. Cuturi and G. Peyré, "Sample complexity of sinkhorn divergences," *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2019.
- [6] G. Mena and J. Weed, "Statistical bounds for entropic optimal transport: sample complexity and the central limit theorem," *arXiv preprint (arXiv:1905.11882)*, 2019.
- [7] Z. Goldfeld, K. Greenewald, Y. Polyanskiy and J. Weed, "Convergence of smoothed empirical measures with applications to entropy estimation," *arXiv preprint (arXiv:1905.13576)*, 2019.
- [8] R. Shwartz-Ziv and N. Tishby, "Opening the black box of deep neural networks via information," *arXiv preprint (arXiv:1703.00810)*, 2017.
- [9] A. M. Saxe, Y. Bansal, J. Dapello, M. Advani, A. Kolchinsky, B. D. Tracey and D. D. Cox, "On the information bottleneck theory of deep learning," *International Conference on Learning Representations (ICLR)*, 2018.
- [10] Z. Goldfeld, E. van den Berg, K. Greenewald, I. Melnyk, N. Nguyen, B. Kingsbury and Y. Polyanskiy, "Estimating information flow in deep neural networks," In Proceeding of the *International Conference of Machine Learning (ICML)*, 2019.
- [11] M. I. Belghazi, A. Baratin, S. Rajeswar, S. Ozair, Y. Bengio, A. Courville and R. D. Hjelm, "*MINE: Mutual Information Neural Estimator*," In Proceeding of the International Conference of Machine Learning (ICML), 2018.