Time Series and Machine Learning Reading Group 2024 Spring/Summer

We will read some of the following references on deep nerual networks theories and relevant techniques, casual inference, and time series:

References

Lu, J., Shen, Z., Yang, H., and Zhang, S. (2021). Deep network approximation for smooth functions. *SIAM Journal on Mathematical Analysis*, **53**, 5465—5506.

Zhou, X., Jiao, Y., Liu, J., and Huang, J. (2023). A deep generative approach to conditional sampling. *Journal of the American Statistical Association.*, **118**, 1837–1848.

Shen, G., Jiao, Y., Lin, Y., and Huang, J. (2022). Approximation with CNNs in Sobolev space: with applications to classification *NeurIPS 2022*.

Nakada, R., and Imaizumi, M. (2020). Adaptive approximation and generalization of deep neural network with intrinsic dimensionality. *Journal of Machine Learning Research.*, **21**, 1–38

Song, S., Wang, T., Shen, G., Lin, Y., and Huang, J. (2023). Wasserstein generative regression. *arXiv preprint*, arXiv:2306.15163.

Zhong, Q., Mueller, J., and Wang, J.-L. (2021). Deep extended hazard models for survival analysis. *ICML*.

Chernozhukov, V., Chetverikov, D., Demirer, M., Duflo, E., Hansen, C., Newey, W., and Robins, J. (2018). Double/debiased machine learning for treatment and structural parameters. *Econometrics Journal*, C1–C68.

Athey, S., and Imbens, G. (2016). Recursive partitioning for heterogeneous causal effects. *Proceedings of the National Academy of Sciences*, **113**, 7353–7360.

Semenova, V., Goldman, M., Chernozhukov, V., and Taddy, M. (2023). Inference on heterogeneous treatment effects in high-dimensional dynamic panels under weak dependence. *Quantitative Economics*, **14**, 471–510.

Leung, MP. (2023) Causal inference under approximate neighborhood interference. *Econometrica* **90**, 267–293.

Ogburn, L., Sofrygin, O., Diaz, I., and Van der Laan, J. (2022) Causal inference for social network data. *Journal of the American Statistical Association.*

Forastiere, L., Airoldi, E. M. and Mealli, F. (2021) Identification and estimation of treatment and interference effects in observational studies on networks. *Journal of the American Statistical Association*, **116**, 901–918.

We will also read some of the following non-technical papers on state-of-the-art deep learning methodology and time series forecasting:

References

Ataee Tarzanagh, D., Li, Y., Thrampoulidis, C., and Oymak, S. (2023). Transformers as Support Vector Machines. *arXiv preprint*, arXiv:2308.16898.

Hartford, J., Lewis, G., Leyton-Brown, K., and Taddy, M. (2017). Deep IV: A flexible approach for counterfactual prediction. In *International Conference on Machine Learning.*