Graph Element Networks for Wind Nowcasting

EE-452 – project

Arnaud Pannatier

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1 Introduction

1.1 Related works

Graph Element networks [Alet et al., 2019]

2 Exploration

- We want our graph to represent the state of the space
- Features : field values
- Edge features : derivatives ?
- Setting up the graph : Kmeans + nearest neighbors // scale free network based on the variation of the field
- Connected graph
- Expect local connections but ablation
- comment on diameter and degree distribution
- display visualization of the two networks
- Compare with traditional Finite Element method

3 Exploitation

Here the node features is the most informative, maybe the edge features depending on the exploration of 1.

Have a good baseline.

4 Communication

- Good report
- Github
- Streamlit

References

[Alet et al., 2019] Alet, F., Jeewajee, A. K., Villalonga, M. B., Rodriguez, A., Lozano-Perez, T., and Kaelbling, L. (2019). Graph element networks: adaptive, structured computation and memory. In Chaudhuri, K. and Salakhutdinov, R., editors, *Proceedings of the 36th International Conference on Machine Learning*, volume 97 of *Proceedings of Machine Learning Research*, pages 212–222. PMLR.