AM221 Final Project Proposal

Dictionary Selection Under a Supermodular Assumption

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February 22, 2016

1 Collaboration

As noted above, this project is to be completed by Taylor Killian and Leonhard Spiegelberg with careful guidance by Prof. Singer. We anticipate that this project will take our full coordinated effort to complete a worthwhile result by the end of the semester. We have already begun trying to understand the literature and underlying structure of the Sparse Regression/Dictionary Selection problem formulation, including all assumptions that have been made to facilitate approximate solutions. We anticipate that multiple meetings per week will be necessary to ensure consistent progress.

2 Model/Problem

Introduce the problem and it's complexities

Here we'll want to add some information about Sparse regression, set functions and definitions of sub modular and super modular, Dictionary Selection, Greedy Methods, etc.

2.1 Related Work

A simple overview of prior work

3 Data

4 Deliverables

Place holder section to begin to outline our work

5 Next Steps

What we've got to do!

6 Conclusions & Future Work

6.1 Conclusions

We will have done it!

6.2 Future Work

Rule the world

References

[1] Das, A., Kempe, D., (2011). Submodular meets Spectral: Greedy Algorithms for Subset Selection, Sparse Approximation and Dictionary Selection. *Proceedings of the 28th International Conference on Machine Learnings.*

[2] Cevher, V., Krause, A., (2011). Greedy Dictionary Selection for Sparse Representation. *Selected Topics in Signal Processing, IEEE Journal of 5* (5), pp. 979 - 988.

[3] Doshi-Velez, F., Williamson, S., (2015). Restricted Indian Buffet Processes. *In submission.* arXiv:1508.06303 [stat.ME]