

## References

- [1] Laura F Bringmann, Nathalie Vissers, Marieke Wichers, Nicole Geschwind, Peter Kuppens, Frenk Peeters, Denny Borsboom, and Francis Tuerlinckx. A network approach to psychopathology: new insights into clinical longitudinal data. *PloS one*, 8(4):e60188, 2013.
- [2] Venkat Chandrasekaran, Pablo A Parrilo, and Alan S Willsky. Latent variable graphical model selection via convex optimization. In *Communication, Control, and Computing (Allerton), 2010 48th Annual Allerton Conference on*, pages 1610–1613. IEEE, 2010.
- [3] Adam S Charles, Aurele Balavoine, and Christopher J Rozell. Dynamic filtering of time-varying sparse signals via  $\ell_1$  minimization. *IEEE Transactions on Signal Processing*, 64(21):5644–5656.
- [4] Nicholas J Foti, Rahul Nadkarni, Adrian KC Lee, and Emily B Fox. Sparse plus low-rank graphical models of time series for functional connectivity in meg.
- [5] Jerome Friedman, Trevor Hastie, and Robert Tibshirani. Sparse inverse covariance estimation with the graphical lasso. *Biostatistics*, 9(3):432–441, 2008.
- [6] Pierre Garrigues and Bruno A. Olshausen. Group sparse coding with a laplacian scale mixture prior. In J. D. Lafferty, C. K. I. Williams, J. Shawe-Taylor, R. S. Zemel, and A. Culotta, editors, *Advances in Neural Information Processing Systems 23*, pages 676–684. Curran Associates, Inc., 2010.

3 page summary of the literature survey of the state of the art on the topic of your project by March 16 (Friday midnight).

You must summarize as following what you have learned about the state of the art approaches to solve your project problem:

- what are the prime techniques
- summary of their approach
- Summary of their results.
- your proposed work.

- Applications

- quantitative finance — refs. [2] and [5] from Foti et al. 2016

- Conditional independence in time series

- Dahlhaus, "Graphical interaction models for multivariate time series," *Metrika*, 2006 — work through derivation for why zeros in inverse spectral density matrix  $\rightarrow$  conditional independence
- <https://arxiv.org/pdf/1503.08639.pdf> — how does this work differ from Foti et al. 2016?
- derivation of Whittle likelihood approximation

- Optimization programs

- derivation of graphical lasso (Friedman et al., "Sparse inverse covariance estimation with the graphical lasso," *Biostatistics*, 2008.
- derivation of *lv*glasso
- derivation of *sg*lasso
- derivation of *lvsg*lasso

and

- Tracking

- uhets

latent variable graphical model selection via convex optimization 2012 in github

**gap** alternating direction methods for latent variable gaussian graphical model selection (Ma) TWO SENTENCES  
OPTIMIZATION CHANGE FROM CHANDES TAKES ADVANTAGE OF STRUCTURE OF PROBLEM TO SOLVE  
EFFICIENTLY

Save for later, updated and faster Friedman glasso: New Insights and Faster Computations for the Graphical Lasso

our work / current progress