

Seminar Digital Communications 389.171

Topics & Technicalities / WS2017/18

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Technicalities

- Topics by mutual agreement from list presented below
- Topics proposed by students are possible, but they must be related to source-channel coding or signal processing: significant scientific aspects are a must!
- Students would
 - start on a topic with some introductory references
 - find more advanced literature and identify key papers
 - understand principles, methods and potential applications
 - give presentations (30mins + 10mins discussion); talks & slides in English
 - possibly do some Matlab/C-Programming if required for the topic
- Deliverables: talks, presentation slides, Matlab/C-code (if applicable)
- Seminar participants should attend the dates and engage in discussions after the talks
- Students should investigate more details of the topics on their own to find out what they like most
 - ➔ preferred topic(s) by email; if required, more than one topic in the same area can be found

. Technicalities

- Deadline for emails on preferred topics: 20 November 2016
- Topics will be allocated, shortly after the deadline has passed
- Students can try to choose later, but then their topic of choice may be gone
- Date for presentations in room CG118:
 - 16 Jan 2018 from 14:00
 - (and only if required: 23 Jan 2018 from 14:00)

Topics in WS2017/18

- Information Bottleneck Graphs for Receiver Design

Proceedings IEEE International Symposium on Information Theory, <http://dx.doi.org/10.1109/ISIT.2016.7541827>

- Phase Retrieval with Application to Optical Imaging

Signal Processing Magazine, <http://dx.doi.org/10.1109/MSP.2014.2352673>

- Matrix Completion With Noise

Proceedings of the IEEE, <http://dx.doi.org/10.1109/JPROC.2009.2035722>

- Sparse Regression Codes

http://www.stat.yale.edu/~arb4/publications_files/SPARC_ITsoc_newsletter.pdf

<http://www.isit2016.org/wp-content/uploads/2015/12/T-AM-3-slides-3.pdf>

- Belief Propagation and its Generalizations

<http://www.merl.com/publications/docs/TR2001-22.pdf>

- Kernel-based Nonlinear Regression

http://www.ant.uni-bremen.de/sixcms/media.php/102/13054/EUSIPC016_Shin.pdf

http://www.ant.uni-bremen.de/sixcms/media.php/102/13341/SPAWC2017_Shin.pdf

- Distributed Optimization and Statistical Learning via the Alternating Direction Method of Multipliers

https://web.stanford.edu/~boyd/papers/pdf/admm_distr_stats.pdf

- Signal Recovery on Graphs: Fundamental Limits

<https://doi.org/10.1109/TSIPN.2016.2614903>

- Downsampling of Signals on Graphs via Maximum Spanning Trees

<https://doi.org/10.1109/TSP.2014.2369013>