

Seminar Signal Processing for Big Data 389.186

Topics & Technicalities / SS2019

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Technicalities

- Topics by mutual agreement from list below
- 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 (25mins + 5mins 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)
- Students should investigate more details of the topics on their own to find out what they find most important and/or interesting
- Short presentation of topics on **4 April 2019, 14:00, in room CG0118.**
- Deadline: **12 April 2019** (email to norbert.goertz@nt.tuwien.ac.at) for a **ranked list of three preferred topics.**
- Dates for seminar presentations: **6 June 2019, from 14:00** (also 13 June, 14:00, if more than 5 students wish to do the seminar; other presentation dates by mutual agreement)

Seminar “Signal Processing for Big Data”: Topics / Summer Term 2019

1. “Database-friendly random projections: Johnson-Lindenstrauss with binary coins”, D. Achlioptas, <https://users.soe.ucsc.edu/~optas/papers/jl.pdf>
2. “Expander Graphs and their Applications”, S. Hoory, N. Linial, A. Wigderson http://www.cs.huji.ac.il/~nati/PAPERS/expander_survey.pdf
3. “Stochastic Relaxation, Gibbs Distributions, and the Bayesian Restoration of Images”, S. Geman, D. Geman, <https://ieeexplore.ieee.org/document/4767596>
4. “Gradient-Based Learning Applied to Document Recognition”, Y. LeCun, L. Bottou, Y. Bengio, P. Haffner, <http://yann.lecun.com/exdb/publis/pdf/lecun-01a.pdf>
5. “ImageNet Classification with Deep Convolutional Neural Networks”, Krizhevsky, Sutskever, Hinton, <https://papers.nips.cc/paper/4824-imagenet-classification-with-deep-convolutional-neural-networks.pdf>
6. “Understanding Deep Convolutional Networks”, S. Mallat, <https://arxiv.org/pdf/1601.04920.pdf>
<https://adeshpande3.github.io/adeshpande3.github.io/The-9-Deep-Learning-Papers-You-Need-To-Know-About.html>
7. “Fundamentals of Random Matrix Theory”, <https://web.eecs.umich.edu/~rajnrao/Acta05rmt.pdf>
8. “Applications of Large Random Matrices in Communications Engineering”, R. Müller, G. Alfano, B. Zaidel, R. de Miguel, <https://arxiv.org/pdf/1310.5479.pdf>