UNIVERSITY OF DEBRECEN
Doctoral School of Informatics

Minor Field of Comprehensive Examination

Big Data Processing

Syllabus

Basic concepts of big data processing. Architectures for Big data processing and storage. Sparse representations. Graph-based processing of big data. Complex networks. Distributed processing using MapReduce. Recommendation Systems. Large-scale machine learning.
Basics on bioinformatics. Exhaustive search. Greedy algorithms. Dynamic programming algorithms. Approximating algorithms.

Bibliography

1. A. Rajaraman, J. D. Ullman: Mining of Massive Datasets, Cambridge University Press, 2011.
2. L. Lovasz: Large Networks and Graph Limits, Colloquium Publications, 2012.
3. R. van der Hofstad: Random Graphs and Complex Networks, Eindhoven University of Technology, 2014.
4. Y. Bengio: Learning Deep Architectures for AI, Foundations & Trends in Machine Learning, 2009.
5. N. C. Jones, P. A. Pevzner: An Introduction to Bioinformatics Algorithms, MIT Press, 2004.
6. P. Compeau, P. Pevzner: Bioinformatics Algorithms: An Active Learning Approach, Active Learning Publishers, USA, 2014.