Seminar: Foundations of Data Science

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Summer 2022
Deep Learning
Ian Goodfellow, Yoshua Bengio, and Aaron Courville,
MIT press 2016, available online: http://www.deeplearningbook.org

Topics:
- Part I: Applied Math and Machine Learning Basics
  - known from undergraduate (BA) lectures
- Part II: Modern Practical Deep Networks
  - Deep Feedforward Networks
  - Regularization for Deep Learning
  - Optimization for Training Deep Models
  - Convolutional Networks
  - Sequence Modeling: Recurrent and Recursive Nets
- Part III: Deep Learning Research
  - Linear Factor Models
  - Autoencoders
  - Representation Learning
  - Structured Probabilistic Models for Deep Learning
  - Deep Generative Models
Organization (1)

Seminar type:
- master’s seminar (German/English by arrangement)
- open to students of Statistics, Data Science, Computer Science

Block Seminar:
- initial meeting (∼ April/May)
- seminar preparation (∼ 10 weeks)
- seminar sessions (4-5 meetings, ∼ mid August)

Grading:
- oral presentation (25 min + discussion)
- written report (about 10 pages)
- active participation
Updated information on website (early March):
https://www.statistik.tu-dortmund.de/datasciencess22.html

Registration (registration period 2 weeks, end of March):
▶ e-mail to alexander.munteanu@tu-dortmund.de
▶ name, TU Dortmund e-mail address and enrollment details
  (faculty, main subject, matriculation number)

Topics:
▶ distributed in the initial meeting
▶ priorities can be chosen according to interests
  (ties are broken randomly)