Discrete Inference and Learning

MVA

2017 – 2018

http://thoth.inrialpes.fr/~alahari/disinflearn

Lecturers

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Organization

- 8 lectures of 3 hours each

- Mondays at Centrale Supelec

- 13:45 – 17:00 with a short break or two

- Last lecture: 11th December

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Requirements

- Solid understanding of mathematical models
  - Linear algebra
  - Integral transforms
  - Differential equations

- Ideally, a basic course in discrete optimization

Topics covered

- Basic concepts, dynamic programming, message-passing methods
- Belief propagation (e.g., sum-product, generalized)
- Reparameterization
- Graph-cuts: binary and multi-label energy minimization
- Tree-reweighted message passing
- Message-passing for higher-order models, accelerating message-passing
- Convex relaxations, linear programming relaxations
- Dual decomposition
- Minimizing free energy
- Recent advances

Evaluation

- 3-hour exam on 18th December

- Surprise quizzes!

- Bonus points for excellent class participation

Your tasks

- Following the lectures and participating actively

- Reading the literature

- Doing the quizzes in the class

- Doing well in the exam