

Graphical Models Inference and Learning

MVA

2018 – 2019

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

Lecturers



Yuliya Tarabalka



Karteek Alahari



Email: mva.disinflearn@gmail.com

Organization

- 8 lectures of 3 hours each
- Tuesdays at CentraleSupélec
- 13:45 – 17:00 with a short break or two
- Last lecture: 12th February

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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, Bayesian networks, Markov random fields
- Dynamic programming, reparameterization, message-passing methods, belief propagation (e.g., sum-product, generalized)
- Graph-cuts: binary and multi-label energy minimization
- Move-making algorithms, Tree-reweighted message passing
- Convex relaxations, linear programming relaxations
- Primal-dual schema, dual decomposition
- Parameter learning
- Recent advances

Evaluation

- 3-hour exam on 19th February
- 3 quizzes on papers presented !
 - 18/12, 15/1, 12/2
- Bonus points for paper presentation
- Bonus points for excellent class participation

What you will learn?

- Fundamental methods
- Real-world applications
- Also, pointers to using these methods in your work

Your tasks

- Following the lectures and participating actively
- Reading the literature
- Doing the quizzes in the class
- Doing well in the exam

Internship possibilities

- Two positions in Grenoble
 - More announced later



Internship possibilities

- Incremental Learning for Scene Understanding
- (3D) Object Discovery in Video

See details at <http://thoth.inrialpes.fr/jobs>