Quentin **Klopfenstein**

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Education

PhD in Applied Mathematics — *Dijon, France*
Université de Bourgogne — *2018-2021*
- Advisors: Samuel Vaiter and Hervé Cardot
- Title: Non-smooth optimization for the estimation of cellular immune components in a tumoral environment
- Funding: Contrat doctoral (Concours 2018)

MSc in Applied Mathematics — *Dijon, France*
Université de Bourgogne — *2015-2017*
- Graduated with high honors
- Ranked 1/11
- Courses: Convex optimization, data analysis, Statistical inference, probability theory, stochastic algorithm

BSc in Mathematics — *Dijon, France*
Université de Bourgogne — *2012-2015*

Experience

Post-doctoral researcher — *Esch-sur-Alzette, Luxembourg*
Université du Luxembourg — *October 2021- current*
- Developping Machine Learning tools for Parkinson Disease research
- Continue research activity on Coordinate descent for machine learning optimization problems

Teaching assistant — *Dijon, France*
Université de Bourgogne — *Jan. 2018-June 2021*
- Teaching statistical classes. Subjects include: introduction to probability distribution, confidence interval and statistical tests
- Given approximately 120 hours of classes

Biostatistician — *Dijon, France*
Centre Georges François Leclerc, Team of Prof. Ghiringhelli — *Oct. 2017 - Sept. 2018*
- Worked in the research team of a cancer Institute
- Performed survival analysis, data analysis and software development

Biostatistics Intern — *Dijon, France*
Centre Georges François Leclerc, Team of Prof. Ghiringhelli — *April 2017-Sept. 2017*
- Compared different algorithms to estimate immune cells proportions inside a tumor

Publications

Mathematics and Machine learning

Publications

- Q. Bertrand, Q. Klopfenstein, M. Blondel, S. Vaiter, A. Gramfort, J. Salmon. *Implicit differentiation of Lasso-type models for hyperparameter optimization*. ICML. 2020
- Q. Klopfenstein and S. Vaiter. Linear Support Vector Regression with Linear Constraints. Machine Learning. 36 pages. 2021

Preprints

- Q. Bertrand, Q. Klopfenstein, M. Massias, M. Blondel, S. Vaiter, A. Gramfort, J. Salmon. *Implicit differentiation for fast hyperparameter selection in non-smooth convex learning.* Submitted. arXiv:2105.01637. 45 pages. 2021
- Q. Klopfenstein, Q. Bertrand, A. Gramfort, J. Salmon, S. Vaiter. *Model identification and local linear convergence of coordinate descent*. Preprint. arXiv:2010.11825. 26 pages. 2020

Biostatistics

- C. Reichling, J. Taieb, V. Derangère, Q. Klopfenstein *et al. Artificial intelligence-guided tissue analysis combined with immune infiltrate assessment predicts stage III colon cancer outcomes in PETACC08 study*. Gut. 2019
- Q. Klopfenstein, C. Truntzer, J. Vincent, F. Ghiringhelli. *Cell lines and immune classification of glioblastoma define patient's prognosis. British Journal of Cancer*. 2019
- F. Ledys, Q. Klopfenstein, C. Truntzer, L. Arnould *et al. RAS status and neoadjuvant chemotherapy impact CD8+ cells and tumor HLA class I expression in liver metastatic colorectal cancer*, Journal for Immunotherapy of Cancer, 2018
- J.D Fumet, C. Richard, F. Ledys, Q. Klopfenstein *et al*. *Prognositc and predictive role of CD8 and PD-L1 determination in lung tumor tissue of patients under anti PD-1 therapy*. British Journal of Cancer. 2018
- T. Collot, JD. Fumet, Q. Klopfenstein, J. Vincent *et al.Bevacizumab-based Chemotherapy for Poorly-differentiated Neuroendocrine Tumors*. Anticancer Research. 2018

Talks

- 2020-10-21: Séminaire SPOC, Two algorithms to solve the LASSO, Université de Bourgogne
- 2020-07-14: ICML2020, Implicit differentiation of Lasso-type models for hyperparameter optimization, online conference
- 2019-08-27: GRETSI 2019, Linear Simplex Support Vector Regression, Lille
- 2019-07-02: SPARS 2019, Linear Simplex Support Vector Regression, Toulouse
- 2019-06-04: JDS 2019, Linear Simplex Support Vector Regression, Faculté des Sciences et Technologies, Nancy
- 2019-05-13: SMAI 2019, Linear Simplex Support Vector Regression, Guidel Plages
- 2019-04-12: Journée des Jeunes Chercheurs en Mathématiques, Deconvolution models: a tool to better understand cancers, Université de Bourgogne Franche Comté, Bensançon

Grants

- Best PhD prize, EUR given by Institut de Mathématiques de Bourgogne (2021)
- Grant obtained for the visit of PhD Student from other teams. Research proposal written with Quentin Bertrand, see GDR IA, 2019

Review services

I was/am a reviewer for AISTAT2021, 2020 IEEE Information Theory Workshop, Journal of Machine Learning Research and Journal of Machine Learning Software.

Open source software

Summary on my github page: `https://github.com/klopfe`

- sparse-ho: Python package for fast automatic hyperparameter selection of sparse linear models
- LSSVR: Python package for linearly constrained support vector regression