Flavien Léger

Curriculum Vitæ

Employment

2020– **Postdoc**, *Sciences Po, département d'économie*, Paris, France.

2020 **Postdoc**, *ENS, DMA*, Paris, France.

2017–2019 **Assistant Adjunct Professor**, *UCLA, Department of Mathematics*, Los Angeles, CA, USA.

Education

2012–2017 **Ph.D. in Mathematics**, *Courant Institute, New York University*, New York, USA.

2010–2012 **M.S. in Mathematics**, *Paris 6*, Paris, France.

2010 **B.S. in Mathematics**, *ENS Cachan*, France.

Research Interests

Optimal transport and economic applications, numerical optimization, PDEs.

Awards

2016–2017 Dean's Dissertation Fellowship, NYU GSAS

2012–2016 Henry MacCracken Fellowship, NYU GSAS

2007 Mention at the *Concours Général des Lycées de Mathématiques*, a mathematical Olympiad

Publications

1. Matt Jacobs, Wonjun Lee, and Flavien Léger. The back-and-forth method for Wasserstein gradient flows. *arXiv preprint arXiv:2011.08151*, 2020. Accepted in ESAIM:COCV.

2. Lénaïc Chizat, Pierre Roussillon, Flavien Léger, François-Xavier Vialard, and Gabriel Peyré. Faster Wasserstein distance estimation with the Sinkhorn divergence. In *Advances in Neural Information Processing Systems*, volume 33, pages 2257–2269, 2020.

3. Flavien Léger. A gradient descent perspective on Sinkhorn. *Appl Math Optim*, 2020.

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4. Matt Jacobs and Flavien Léger. A fast approach to optimal transport: the back-and-forth method. *Numerische Mathematik*, pages 1–32, Oct 2020.

5. Flavien Léger and Wuchen Li. Hopf-Cole transformation via generalized Schrödinger bridge problem. *J. Differential Equations*, 274:788–827, 2021.

6. Matt Jacobs, Flavien Léger, Wuchen Li, and Stanley Osher. Solving large-scale optimization problems with a convergence rate independent of grid size. *SIAM J. Numer. Anal.*, 57(3):1100–1123, 2019.

7. Flavien Léger. A geometric perspective on regularized optimal transport. *J. Dynam. Differential Equations*, 31(4):1777–1791, 2019.

8. Flavien Léger. A new approach to bounds on mixing. *Math. Models Methods Appl. Sci.*, 28(5):829–849, 2018.

9. Andrea L. Bertozzi, Thomas Laurent, and Flavien Léger. Aggregation and spreading via the Newtonian potential: the dynamics of patch solutions. *Math. Models Methods Appl. Sci.*, 22(suppl. 1):1140005, 39, 2012.

10. Flavien Léger, Guoshen Yu, and Guillermo Sapiro. Efficient matrix completion with Gaussian models. In *Acoustics, Speech and Signal Processing (ICASSP), 2011 IEEE International Conference on*, pages 1113–1116. IEEE, 2011.

Selected talks

- Mathematics Colloquium, VU Amsterdam, January 2020 (invited)
- SIAM Conference on Analysis of PDEs, La Quinta (CA), December 2019 (invited)
- Geometric Science of Information, Toulouse, August 2019 (invited)
- SOCAMS, Caltech, April 2019 (invited)
- Optimal transport seminar, Caltech, March 2019
- Level Set Seminar, UCLA, Oct. 2017
- CSCAMM Seminar, University of Maryland, Feb. 2017 (invited)
- Analysis Seminar, University of Wisconsin–Madison, Sept. 2016 (invited)
- Poster session, ICASSP, 2011

Computer skills

Advanced	MATLAB, Python
Intermediate	Julia, C, Linux

Teaching experience

Spring 2019	Differential equations
Winter 2019	Optimization
Fall 2019	Optimization

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Spring 2018	Mathematical Modeling
Winter 2018	Methods of Applied Mathematics
Fall 2015	Recitation Leader, Calculus I
Fall 2014	Recitation Leader, Calculus I

Extended professional travel

Summer 2014	UCLA, Los Angeles, CA
Spring 2011	UCLA, Los Angeles, CA
Summer 2010	University of Minnesota, Minneapolis, MN

Languages

French (Mothertongue), English (Fluent), Italian (Intermediate), German (Basic).