

Blanche Buet

Maîtresse de Conférence

LMO - UMR 8628

Université Paris Sud

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1. CURRICULUM VITAE

Personal information

Born on April 14th, 1988 in Charenton-le-Pont (France).

Jobs

- Since September 2015: **Maîtresse de conférences** at the *Laboratoire de Mathématiques d'Orsay* (Université Paris-Sud) and member of **INRIA DataShape** Team since 2020.
- September 2014–August 2015: **ATER** at the *Institut Camille Jordan* (Université Claude Bernard Lyon 1, France).
- September 2011–August 2014: **PhD student** at the *Institut Camille Jordan* (Université Claude Bernard Lyon 1, France).
- September 2007–August 2011: **Élève normalienne** at the *ÉNS Lyon* (Mathematics Department), France.

Education

- **2014 : PhD thesis in Mathematics**, *Université Claude Bernard Lyon 1, France*.
Under the supervision of **Simon Masnou** (Lyon 1) and **Gian Paolo Leonardi** (Modena), at the *Institut Camille Jordan*, defended on December 12th.
Title: *Surface approximation by discrete varifolds: representation, rectifiability, curvature*.
Doctoral committee: Guy DAVID (reviewer), Gian Paolo LEONARDI (advisor), Simon MASNOU (advisor), Petru MIRONESCU, Hervé PAJOT, Giandomenico ORLANDI (reviewer), Édouard OUDET (reviewer) and Alain TROUVÉ.
- **2011: Master in mathematics**, *ENS Lyon* and *Université Claude Bernard Lyon 1*, France.
- **2010: Agrégation de mathématiques** (Competitive exam for recruiting teachers), *ENS Lyon*, France.
- **2008: Bachelor in mathematics**, *ENS Lyon*, France.
- **2005: Baccalauréat**, *Pertuis*, France.

Scientific responsibilities

- SUPERVISION:
 - Supervisor of the Master 2 internship of C. Boricaud.
 - Co-advisor of the PhD thesis of A. Saguéni (since october 2020) and C. Boricaud (since october 2021).
- Member (examinator) of PH.D. COMMITTEES of E. Cavallotto (06/2018), L.A.D. Ferrari (10/2018), C. Labourie (01/2020), F. Générac (06/2020), R. Tinarrage (10/2020) and R. Petit (12/2022).
- RECRUITEMENT COMMITTEE:
 - Member of 9 recruitment committees for “Maître-sse de conférences” positions (Orsay 2017,2018,2019,2021,2022, - P5 2019 - P6 2020 - Créteil 2021 - Nice 2022),
 - 1 recruitment committee for “PRAG” position (Orsay 2020),
 - Since 2022: member of the FMJH post-docs recruitment committee.
- Co-organizer of the Harmonic Analysis team seminar (2017–2019 and since 2022) and Co-organizer of the *44th Summer Symposium in Real Analysis* held in Paris and Orsay in June 2022 (main organizer: L. Moonens).

- COUNCILS:
 - Member of scientific commission of Paris-Saclay CCUPS (since 2021)
 - Member of laboratory council (since 2020).
 - Member of gender committee (since 2019).
- Oral examinations for the entrance exam for the École Normale Supérieure de Cachan (2019).

Main fundings

- October 2021–2025: scientific coordinator of JCJC **ANR project** *GeMfaceT: A bridge between Geometric Measure and Discrete Surface Theories*, funding: 187600 €, <https://www.imo.universite-paris-saclay.fr/~blanche.buet/anrGeMfaceT.html>.
- 2018: scientific coordinator of JCJC **INSMI PEPS project** *A unified framework for surface approximation through varifolds*, funding: 3 000 €.

Periods spent abroad

- November 2015–December 2015: I spent 2 months at the *Hausdorff Center for Mathematics* in Bonn (Germany) to work with Martin RUMPF.
- September 2013–December 2013: I spent 3 months at the *Maths Department of Modena* (Italy) to work with my advisor Gian Paolo LEONARDI.
- June 2008–July 2008: I spent 6 weeks at the *Poncelet laboratory in Moscow* (Russia) for a Bachelor internship supervised by Victor PRASOLOV.

Dissemination

- I wrote the **dissemination paper** *Varifolds : des films de savon aux surfaces discrètes* for the “Maths en pleines formes Express” journal, published for the “Salon de la culture et des jeux mathématiques” in June 2022, https://www.cijm.org/pdf/maths_express/2022_Maths_en_pleines_formes_Express.pdf.
- I gave a talk in the *Mathematic Park* seminar aiming at students in the first years of university <http://ihp.fr/fr/seminaire/mathpark-programme1819> (january 2019).

2. PUBLICATIONS AND COMMUNICATIONS

Preprints

- *Flagfolds*, BUET Blanche, PENNEC Xavier, ArXiv (2023), 57p.

Journal papers (with peer-review process)

- *Mean Curvature Motion of Point Cloud Varifolds*, BUET Blanche, RUMPF Martin, ESAIM: M2AN, 56 (2022), p. 1773–1808, <https://www.esaim-m2an.org/articles/m2an/abs/2022/05/m2an210048/m2an210048.html>.
- *Weak and approximate curvatures of a measure: a varifold perspective*, BUET Blanche, LEONARDI Gian Paolo, MASNOU Simon, *Nonlinear Analysis*, 222 (2022), p. 1–34, <https://www.sciencedirect.com/science/article/abs/pii/S0362546X22001171>.
- *A varifold approach to surface approximation*, BUET Blanche, LEONARDI Gian Paolo, MASNOU Simon, *Archive for Rational Mechanics and Analysis*, 226 (2017), p. 639–694, <https://link.springer.com/article/10.1007/s00205-017-1141-0>.
- *Recovering measures from approximate values on balls*, BUET Blanche, LEONARDI Gian Paolo, *Annales Academiæ Scientiarum Fennicæ*, 41 (2016), p. 947–972, <https://www.acadsci.fi/mathematica/Vol41/BuetLeonardi.html>.
- *Quantitative conditions of rectifiability for varifolds*, BUET Blanche, *Annales de l’institut Fourier*, 65 no. 6 (2015), p. 2449–2506, http://www.numdam.org/item/AIF_2015__65_6_2449_0/.

Ph.D. Dissertation

Discrete varifolds and surface approximation: representation, curvature, rectifiability., BUET Blanche, Décembre 2014, Université Lyon 1, France. Ph.D advisors LEONARDI Gian Paolo and MASNOU Simon.

Proceedings with peer-review process

- *Partial differential equations and variational methods for geometric processing of images*, B. Buet, J-M. Mirebeau, Y. van Gennip, F. Desquilbet, J. Dreo, F. Barbaresco, G.P. Leonardi, S. Masnou, C-B. Schönlieb, The SMAI journal of computational mathematics, Volume S5 (2019), https://smai-jcm.centre-mersenne.org/item/SMAI-JCM_2019__S5__109_0/.
- *Discretization and approximation of surfaces using varifolds*, BUET Blanche, LEONARDI Gian Paolo, MASNOU Simon, Geometric Flows, 3(2), 2018.
- *Discrete varifolds and surface approximation*, BUET Blanche, LEONARDI Gian Paolo, MASNOU Simon, Topological Optimization and Optimal Transport in the Applied Sciences, vol. 17, Berlin, Boston: De Gruyter (2017).
- *Discrete varifolds: a unified framework for discrete approximations of surfaces and mean curvature*, BUET Blanche, LEONARDI Gian Paolo, MASNOU Simon, SSVM 2015, LNCS volume 9087 (2015), p. 513-524.
- *Varifolds and Generalized curvature*, BUET Blanche, in ESAIM Proceedings, 42 (2013), p. 1-9.

Other publications

- BUET Blanche, *Varifolds : des films de savon aux surfaces discrètes*, Maths en pleines formes Express, 2022, https://www.cijm.org/pdf/maths_express/2022_Maths_en_pleines_formes_Express.pdf. Article de vulgarisation.
- AUPHAN Thomas, BOCHARD Pierre, BOUHOURS Juliette, BUET Blanche, CLAISSE Julien, CRES-TETTO Anaïs et DELEUZE Yannick. Semaine d'Etude Mathématiques et Entreprises 2 : *Analyse multivariées pour la production d'aluminium*, 2011, <http://hal.archives-ouvertes.fr/hal-00780582>.

Oral communications in Conferences

- June 2023 *upcoming: Approximation Theory Workshop FoCM 2023 conference* (Paris, France).
- Mars 2023: *The Paris-London Analysis Seminar* (UCL, London, UK).
- November 2022: *Measure-theoretic Approaches and Optimal Transportation in Statistics*, IHP thematic semester: Geometry, Topology and Statistics in Data Sciences (Paris, France), link to video: <https://dx.doi.org/10.57987/IHP.2022.T3.WS3.002>.
- June 2022: *Shape Optimization and related Topics* (Roscoff, France).
- January 2021: Mathematics and Image Analysis MIA'21, link to video: http://gdr-mia.math.cnrs.fr/events/fgmia-21/program/talks/B_Buet.mp4
- March 2020: Workshop *Geometric Curvature Functionals and Optimization* (Göttingen, Germany).
- April 2019: *Geometric Processing*, IPAM program Geometry and Learning from Data in 3D and Beyond (UCLA, USA).
- February 2019: *Variational Methods and Optimization in Imaging*, thematic trimester of IHP: The Mathematics of Imaging (Paris, France).
- July 2018: *Curves and Surfaces* (Arcachon, France).
- June 2018: workshop *Geometric Measure Theory* (Verona, Italy).
- May 2018: *CANUM 2018* (Agde, France).
- September 2016: *Geometric Measure Theory* (Toulouse, France).
- January 2016: *Mathematical Imaging and Surface Processing* (Oberwolfach, Germany).
- June 2015: **Poster prize**, *SMAI 2015* (Les Karellis, France).
- June 2015: *SSVM 2015* (Lège Cap Ferret, France).
- February 2015: *XXV Convegno Nazionale di Calcolo delle Variazioni* (Levico, Italy).

- October 2014: workshop *Shape and Topological Optimization* (Linz, Austria).
- June 2014: **Poster prize**, *Curves and Surfaces 2014* (Paris, France).

Short courses

- December 2023 *upcoming*: short course (3h), école d'hiver d'Aussois (last edition 2022: <https://sites.google.com/view/adrienboulangermaths/home/aussois-2022>).
- October 2019 : short course (2h): *Varifolds and geometric inference* at INRIA DataShape seminar team (Porquerolles, France).
- October-November 2018: short course (6h): *Varifolds and approximation* in Institut Fourier in the context of GeoSpec project.