

Nationality
French

Claire Bréchet

statistics & computational geometry researcher

Address

Office A207, Bat A,
Université Rennes 2,
UFR Sciences
Sociales,
Pl. Recteur Henri le
Moal,
35000 Rennes
France

Email

claire.brecheteau
@univ-rennes2.fr

Site internet

perso.univ-rennes2.fr/
claire.brecheteau

Research Interests

Nonparametric
statistics,
Topological-Geometric
data analysis,
Distance to measure,
Bootstrap for tests,
Clustering - k-means,
Trimmed estimators,
Convergence rates

2020 - ... **Assistant Professor in statistics** Université Rennes 2

Education

2018 - 2020 **Post-doctorial position in statistics and machine learning** École Centrale
Nantes and & Laboratoire Jean Leray, Université de Nantes
Under the supervision of B.MICHEL

2015 - 2018 **PhD student in Statistics and Computational Geometry** LMO and Inria,
Université Paris-Saclay, France
Under the supervision of P. MASSART and F. CHAZAL on the subject "*Towards a robust vision of geometric inference*".
PhD defense : 24th of september, 2018

2014 - 2015 **M2 Probabilités et Statistiques** Université Paris-Saclay, Orsay, France
mention "good"

2013 - 2014 **Agrégation de mathématiques (Competitive exam for recruiting teachers)** ENS de Cachan, Cachan, France
rank 26th

2011 - 2013 **L3 & M1 MFA and Magistère** Université Paris-Sud 11, Orsay, France
mention "good" and "very good"

2009 - 2011 **Intensive Preparation for Engineering Schools, MPSI & MP*** Lycée
Clemenceau, Nantes, France

2009, Jun **Baccalauréat** Lycée St Joseph, La Pommeraye, France
mention "very good"

Teaching

2020 - Now **Teaching in Statistics and Mathematics** Université Rennes 2
L1 MIASHS, L2 AES, M1 and M2 MAS - Online course conception - Handout writing

2018 - 2020 **Teaching assistant in Statistics, Data Science and Machine Learning** École Centrale de Nantes, Nantes, France

2015 - 2018 **Teaching assistant in Financial Mathematics and Statistics for L3 students** Faculté Jean Monnet, Sceaux, France

2014 - 2015 **Oral examiner in CPGE - PSI** Lycée Blaise Pascal, Orsay, France

2011 - 2012 **Mathematical tutelage for L1 students** Université Paris-Sud 11, Orsay, France

Programming

R, C++
Python, Matlab, Pascal

Language

French
Native language
English
Proficient

Other Info

Taking part in a
Climate Fresk
(2021,Dec)

Normalienne at ENS
de Cachan,
through the second
competitive
examination
(2013-2015)

FMJH scholarship
(2012-2013)

Prix de la Vocation
Scientifique
et Technique des Filles
Laureate
(2009)

Responsibilities

2021-...	Sustainable development ambassador IRMAR Rennes 2	
2021-...	Co-responsible of the statistical seminar IRMAR Rennes 2	
2021-2023	Award of the AIS by Rennes Métropole	10000 euros for my research
juin 2022	Co-organisation of the Lebesgue thematic semester on artificial intelligence Summer school "Machine Learning and Artificial Intelligence" Université Rennes 2	
28/01/22	Co-organisation of the day ``Filles, Maths et Informatique : Une équation lumineuse'' Université Rennes 2	
20/12/21	Jules Depersin's thesis jury participation <i>Statistical and Computational Complexities of Robust and High-Dimensional Estimation Problems</i> ENSAE	
	Reviewing mathematical papers Computational Geometry	Electronic Journal of Statistics, Discrete and Computational Geometry
2019	Fête de la Science Muséum d'histoire naturelle, Nantes	Hold the mathematical stand
2017-2018	Datashape team Inria seminar organizer	
2017	Helping hand at forum Emploi Maths	
2017	Topdata website administrator	

Publications

C. Bréchet et Clément Levrard
A k-points-based distance for robust geometric inference
Bernoulli 26(4): 3017-3050 (Novembre 2020). DOI: 10.3150/20-BEJ1214

C.Bréchet, Aurélie Fischer et Clément Levrard
Robust Bregman clustering
Ann. Statist. 49(3): 1679-1701 (Juin 2021). DOI: 10.1214/20-AOS2018

C.Bréchet
Robust anisotropic power-functions-based filtrations for clustering.
SoCG 2020: 23:1-23:15

C. Bréchet
A statistical test of isomorphism between metric-measure spaces using the distance-to-a-measure signature
Electronic Journal of Statistics, 13 (1), 795-849 (2019)

C.Bréchet
Robust shape inference from a sparse approximation of the Gaussian Trimmed Log-likelihood preprint, 2018

Talks

Talk: "Robust shape inference from a sparse approximation of the Gaussian trimmed log-likelihood"

2022	Team Seminar	SAMM, Université Paris 1
2021, Oct	Journée scientifique du groupe SMAI-SIGMA	Laboratoire Jacques-Louis Lions, Sorbonne Université
2021, Aug	Journées MAS 2020 (videoconference)	Orléans
2021, June	10e Biennale Française des Mathématiques Appliquées et Industrielles - SMAI	La Grande-Motte
2020	Team Seminars (videoconference)	ENSAI, Télécom Paris, ENS Rennes, Lille
2020, Jul	Workshop on Optimal Transport, Topological Data Analysis and Applications to Shape and Machine Learning (videoconference)	Ohio States University, Columbus
2019	Team Seminars	Versailles, Bordeaux, Poitiers, Rennes, Dijon, Toulouse
2019, Jul	European Meeting of Statisticians (EMS 2019) invited speaker	Palerme, Italie
2019, May	9e Biennale Française des Mathématiques Appliquées et Industrielles - SMAI	Guidel, France
2019, Apr	8èmes Rencontres des Jeunes Statisticiens	Porquerolles, France
2019, Jan	Journées YSP (Young Statisticians and Probabilists) <i>Introduction to Topological Data Analysis.</i> – invited speaker	IHP, Paris, France

Talk: "The k -PDTM: a coresnet for robust geometric inference"

2018, Sep	CNRS-GISL Workshop	Pornichet, France
2018, May	SFDS 50eme journée des statistiques	Saclay, France
2018, May	Team Datashape Seminar	Hyères, France

Talk : "Distance to a measure to compare samples of points"

2017, Oct	Séminaire Parisien de Statistique invited speaker	Paris, France
2017, Sep	StatMathAppli 2017	Fréjus, France
2017, Aug	SIAM Conference on Applied Algebraic Geometry - AG17 invited speaker	Atlanta, États-Unis
2017, Jun	TopData Seminar	Banyuls, France
2017, Jun	Congrès SMAI 2017 8e Biennale Française des Mathématiques Appliquées et Industrielles	Ronce-les-Bains, France
2017, Jun	SFDS 49eme journée des statistiques	Avignon, France
2017, Mar	Team seminar of Applied Mathematics invited speaker	Nantes, France
2016, Jun	Mathematical methods in Statistics	Angers, France
2016, Oct	Gudhi Workshop	Porquerolles, France

Research internships

2017, Jun-Jul	Visiting position at Instytut Matematyki Under the supervision of M. BOGDAN	Wrocław University, Poland
2015, Apr-Jul	M2 Internship Under the supervision of P. MASSART, F. CHAZAL and B. MICHEL Comparison of point clouds thanks to the distance-to-a-measure map	Inria, Université Paris-Saclay, France
2013 & 2014	Geometry Internship Study of volumes in Hilbert's Geometry & About the Mahler conjecture Under the supervision of C. WALSH	Inria CMAP, Ecole Polytechnique, France
2012, Jun	Applied Probabilities to Ecology Internship Study of the Wright-Fisher's model and Kingman's coalescent Under the supervision of C. GIRAUD	CMAP, Ecole Polytechnique, France
2008	Internship with astrophysicists	Institut d'Astrophysique de Paris (IAP), France
2007, Jun	Internship with mathematicians Under the supervision of L. DARNIÈRE	Université d'Angers, France

January, the 2nd, 2022

Claire Bréchet