

BCAM Internship Position Announcement

The following BCAM Internship position is open at BCAM – Basque Center for Applied Mathematics, an interdisciplinary research center located in Bilbao, Basque Country – Spain. The interested applicants can apply via the following webpage: <http://www.bcamath.org/en/research/internships>. It is strongly recommended to apply at least 3 months before the expected starting date.

INTERNSHIP DATA	
Research topic title:	Projective geometry of convex sets and its application to machine learning
Research topic description:	The natural transformations in machine learning (Markov transitions, stochastic kernels, channels, probabilistic mappings) are affine/projective transformations between probability simplexes. This project will 1) characterize such linear geometrical representation and its relationship with classical convex geometry, e.g., convex duality, support functions, and barycentric coordinates; and 2) develop machine learning techniques inspired by such geometrical interpretation, e.g., dimensionality reduction based on invariance w.r.t. affine/projective transformations
Keywords:	Projective geometry, convex geometry, advanced linear algebra
Required knowledge and skills:	Projective geometry, linear algebra
Required language skills¹:	Spanish or English
Duration and dates:	3 months; flexible dates depending student availability
Covered expenses:	To be negotiated
Application deadline:	1st of July 2019

SUPERVISOR DATA	
Supervisor:	Santiago Mazuelas
Research line:	Machine Learning
Email:	smazuelas@bcamath.org

¹ Note that English is the official language at BCAM.

