

# Xavier Loizeau | Scientifique de Recherche Supérieur

Flat 6 Keats House, Roman Road, – E2 0HT Londres, Angleterre

☎ (+44) 7845 0795959 • ✉ [application@loizeau.eu](mailto:application@loizeau.eu)

## Professional experiences

**National Physical Laboratory,** **Teddington, Angleterre**  
Scientifique de Recherche Supérieur 2019–Present  
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**Ruprecht-Karls-Universität, Institut de mathématiques appliquées, Heidelberg, Allemagne**  
Doctorant en Mathématiques 2015–2019  
Méthodes Bayésiennes hiérarchiques et aggrégation = ;

**ONERA (National Agency of Study and Research in Aerospace)** **Palaiseau, France**  
Internship, 18.50/20 2015  
Building a multi-fidelity surrogate model for Infra-Red emission by space-rocket engines : based on design of experiment, Bayesian Co-Kriging, sensitivity analysis and propagation of uncertainty. Implementations with R.

**CREST (Research Center for Economics and Statistics)** **Rennes, France**  
Internship 2014  
Studied, implemented and compared two methods for illumination bias removal on electronic microscope images : implemented an R package using C++ for these methods, based on parametric and non parametric Kernel regression.

## Education

**ENSAI - National School for Statistics and Information Analysis** **Rennes, France**  
MSc in Advanced Statistical Engineering ; 2012–2015  
16.15/20

**University of Rennes 1, department of mathematics** **Rennes, France**  
MSc in Mathematical Statistics ; 2015  
13.9/20 (2<sup>nd</sup> class division II (2.2) Honours)

**University of Rennes 1, department of mathematics** **Rennes, France**  
BSc in Mathematics ; 2012  
10.114/20

**Lycée Clemenceau** **Nantes, France**  
Post secondary classes préparatoires Specialisation in Mathematic and Physics 2010–2012  
undergraduate-level courses required in preparation for competitive entrance exams into top graduate and engineering schools (France's grandes écoles).

Subjects in study program.....

MATHEMATICS : complex analysis, differential equations, topology, functional analysis, measure theory, numerical analysis, group theory, arithmetic, linear algebra ;

STOCHASTIC : statistical ill-posed inverse problems, Bayesian methods for non parametric models, frequentist methods for non parametric models, minimax theory, survival analysis, Le Cam theory, test theory, generalized additive models,

non linear regression, time series, Hidden Markov Models, Kalman and particle filters, stochastic processes ;

DATA SCIENCE : neural networks, SVM, random forests, classification/regression trees, CART, BAGGING, image processing (filtering, Markov fields, MAP classification, MAP reconstruction), kNN, surrogate models, design of experiments, quality control of industrial processes.

Academic projects.....

**Master thesis, 15/20** **Rennes1 university/ENSAI**

comparing prior choices in terms of their posterior concentration, 2015  
comparison of theoretical and practical properties of two prior choices for the white noise model ;

**Statistics project, 15.80/20** **ENSAI/THALES**

created a boat tracking algorithm using AIS system data, 2015  
implemented in R, involves Kalman and particular filter (group project) ;

**Statistics project** **ENSAI/Aix-Marseille University**

cluster evolution analysis, application to cytometric analysis 2014  
analyzed the evolution of an ecosystem in state of remediation. Involves managing a large amount of data, different clustering algorithm and research of comparison criterion for partitions on different data bases (group project) ;

**Statistics project** **ENSAI**

setting patient profiles based on IGS II and Glasgow scores after a liver transplant, 2013  
analyzing the power of prediction of these scores about death, fitting a logistic regression model to our population (group project) ;

**Mathematics/IT project,** **Lycée Georges Clemenceau**

coding an automatic music composer using Rubik's Cube modeling, 2012  
developed in PASCAL, involves group theory to create a Rubik's Cube solving algorithm.

Online lectures (certificates available on Linkedin).....

Responsive Website Development and Design (Coursera 6-courses specialization, University of London, Goldsmiths), Initiation à la théorie des distributions (Coursera, École Polytechnique), Approximation Algorithms Part I (Coursera, École Normale Supérieure), Introduction to Complex Analysis (Coursera, Wesleyan University)

## Personal projects

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**Website development**

Developing my personal website, 2018  
to be deployed, it allows communication with students, sharing content about my research and my resume. It is dedicated to become a larger communication platform including a blog about my research activity. Deployed with meteor and mongoDB.

## IT

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Operating systems.....

Mac OS, Windows, Ubuntu

Programing languages.....

C++ (used to develop a smart house assistant application), Java, Pascal, HTML, CSS, JavaScript (Meteor)

Data science.....

R (many projects during studies, intensive use during internships for simulations and real data applications, data simulations during my PhD), Matlab (used during studies and for image treatment projects as well as for personal projects using Gibb's sampling for Hidden Markov Models), SAS (used during studies), currently learning : Python

## Languages

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**French:** native language

**English:** 2013 : TOEIC test, advanced level, 880/990

**German:** basic, currently learning

**Spanish:** Basic

## Interests

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**Music:** Guitar (formerly in band), singing, composition

**Sport:** judo (13 years, brown belt), jujitsu, handball, volleyball, running, bouldering

**Reading:** fictions, popular science, philosophy, sociology, technological surveillance, news

**Traveling**

## Personal Details

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**Date of Birth :** 13<sup>th</sup> of January, 1992

✉ : Wilckensstraße 20, 69120 Heidelberg, Germany

☎ : (+49) 1575 9361755

@ : xloizeauhd@gmail.com

in : [www.linkedin.com/in/x-loizeau](http://www.linkedin.com/in/x-loizeau)