Xavier Loizeau | PhD student in mathematical statistics

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Curious and enthusiast, I am always eager to learn new concepts and consider any source of knowledge valuable. This energy comes with a deep joy in sharing knowledge, naturally resulting in a passion for popularization. Even though I followed the path of mathematics, the range of my centers of interest is much broader and I am equally passionate about other forms of art, such as music or literature.

Education

Ruprecht-Karls-Universität, Institute of applied mathematics, **Heidelberg, Germany**
Philosophiæ doctor (PhD) student in Mathematic 2015–Present
frequentist analysis of Bayesian methods for statistical ill-posed inverse problems;

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

University of Rennes 1, department of mathematics **Rennes, France**
MSc in Mathematical Statistics; 2015

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

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 **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 **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)

Professional experiences

ONERA (National Agency of Study and Research in Aerospace) **Palaiseau, France**
Internship 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.

IT

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

French: native language

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

German: basic, currently learning

Spanish: Basic

Interests

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

Date of Birth: 13^{th} of January, 1992

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