Benjamin Bordais

November 29 1996

Education

2019-2020 **M2 SIF - Magistère informatique and Master's degree**, *École Normale Supérieure de Rennes*, Bruz, *Université de Rennes 1*, Rennes

2018-2019 **Prélab - year dedicated to internships abroad**, *École Normale Supérieure de Rennes*, Bruz

2017-2018 **M1 SIF - Magistère informatique and Master's degree**, *École Normale Supérieure de Rennes*, Bruz, *Université de Rennes 1*, Rennes

2016-2017 **L3 RI - Magistère informatique and Bachelor's degree**, *École Normale Supérieure de Rennes*, Bruz, *Université de Rennes 1*, Rennes

2015-2016 **MP*, second year of Post-secondary preparatory school**, Lycée Malherbe, Caen

2014-2015 **MPSI, first year of Post-secondary preparatory school** , Lycée Malherbe, Caen

Post-secondary preparatury school: Classes preparing for entrance examinations to the French Grandes Ecoles. The preparation for the entrance examinations to the French Grandes Ecoles begins after a student has obtained a Baccalauréat diploma (the bac, which is the equivalent of A-levels in Britain, marks the end of high-school education and qualifies a student to enter university). These preparatory courses are rarely available outside France.

2013-2014 **Baccalauréat Diploma**, Lycée Gambier, Lisieux
with distinction

Experience

Internship of Master 1

Feb. 2020 - July 2020 **Determinacy of a large class of concurrent games**,
LSV, Cachan, France, Patricia Bouyer and Stéphane Le Roux as Supervisors.
Internship in progress.

Internship of Prélab

Jan. 2019 - June 2019 **Human Errors and Natural Strategies**,
Institute of Computer Science, Polish Academy of Science, Warsaw, Poland, Wojtek Jamroga as Supervisor.
We studied with Tamarin a way to synthetize and test natural (that is, simple enough to be understood by human agents) strategies that could be used in security and voting protocols.

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Internship of Prélab

Sept. 2018 - Dec. 2018 **Expected Window Mean-Payoff**,
Université Libre de Bruxelles (ULB), Brussels, Belgium, Jean-François Raskin as Supervisor.
We studied the expected value of a function defined on infinite paths in weighted Markov chains (and Markov decision processes): the window mean-payoff (that computes the minimum mean payoff obtained through a window sliding along the path). We looked at decision problems for different variants of the function, algortihm to solve them, complexity and hardness. A version of our work can be found on arXiv, and a submission to FSTTCS 2019 was accepted.

Internship of Master 1

May 2018 - August 2018 **Ride sharing platform Vs Taxi platform: the impact on the revenue**,
Singapore University of Tecnhology and Design (SUTD), Singapore, Singapore, Costas Courcoubetis as Supervisor.
We studied a model of a ride sharing platform with the tools of game theory, specifically, we looked at what could be expected to happen if an additionnal taxi platform was introduced: what is going to be the impact on the revenue of the platform and on the price for the customer.

Internship during the first year of Master

Sept. 2017 - May 2018 **Evaluating regulation policies for subways with model checking**,
Inria Rennes, Team SUMO, Rennes, France, Nathalie Bertrand, Loïc Hélouët and Ocan Sankur as Supervisors.
A year-long internship during the school year (2 hours a week) with two fellow students Thomas Mari and Julie Parreaux. We studied how to model a subway network with MDPs and how to apply model checking to it to evaluate the efficiency of regulation policies (how efficient it is to avoid delays, or to catch them up).

Internship of Bachelor

May 2017 - July 2017 **Establish unlinkability of cryptographic protocols with Proverif**,
Inria Rennes, Team EMSEC, Rennes, France, Stéphanie Delaune as Supervisor.
We studied how to use Proverif to automatically prove a specific property on cryptographic protocol: Frame Opacity, which could be a sufficient condition to establish that a security protocol ensures the property of unlinkability.

Publications

[FSTTCS 2019] **Expected Window Mean-Payoff**,
B. Bordais, S. Guha, J-F. Raskin

[RSSRail 2019] **Performance Evaluation of Metro Regulations Using Probabilistic Model-checking**,
N. Bertrand, B. Bordais, L. Hélouët, T. Mari, J. Parreaux, O. Sankur.

Computer skills

Basic Java, Scala, Lisp, C, R

Intermediate PYTHON, C++

Advanced Ocaml

Miscellaneous

LaTeX, Isabelle HOL, Proverif, Tamarin, Coq

Languages

French **Mothertongue**

English **Advanced** *TOEIC Score 945*