NICOLAS WARD

(MATHEMATICS + TECHNOLOGY) ^ PEOPLE

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Email: ward.nicolas@outlook.com

Phone: +33 (0)6 88 20 28 07

Address:
6, Avenue de l'Amiral Courbet
06160 Antibes, France

SUMMARY

I come alive at the intersection of Mathematics and Computer Science. In particular, I am driven by the applications of Mathematics to Computational Neuroscience.

EDUCATION

BSc, Applied Mathematics and Social Sciences   2016-2019 (expected)
Laboratoire J.- A. Dieudonné (LJAD), University of Nice Sophia Antipolis (France)

- Ranked 1st among all students at the Faculty of Science in terms of GPA during both Year 1 and Year 2 (no results received for Year 3 yet)
- Received the Innovation Bonus for outstanding student contribution to Science and Technology at the University of Nice
- **Undergraduate dissertation:** Unsupervised Classification of Neurobiological Data (supervisor: Christine Malot)

RELEVANT COURSES

Advanced Programming in R, Probability Theory, Game Theory I & II, Database Systems, Differential Calculus, Choice Theory, Dynamical Systems, Data Mining, Stochastic Calculus, Integrals and Probability, Markov Chains, Time Series

ACADEMIC PROJECTS

Optimisation: "Measuring the performances of Gradient Descent Optimisation Algorithms" (supervisor: Mohamed Elkadi)
Computing (Java): "A modern redesign of the Snake video game"
Data Mining: A Machine Learning approach to Credit Scoring (SVMs, Neural Networks, Bayesian Inference)
Economics: "An inquiry into the Mechanisms and Impacts of Money Creation" (supervisor: Anna Tykhonenko)

WORK EXPERIENCE

Research Intern (Machine Learning), Knap (Monaco)
June 2018 - August 2018
Designed a prediction system for fraud detection using Statistical Decision Theory (probabilistic graphical models, Markov decision processes, Monte Carlo methods). My approach consisted in encoding user behaviors into sequences of letters, assigning risk weights to each and computing those quantified behaviors into utility functions, so as to decide when to proceed to a security check.

Project Lead, Demola (Nice, France and Salt Lake City (UT), USA)
September 2017 - July 2018
Assembled and led a team of 6 master's / PhD students in designing a conversational user interface aimed at enhancing educational content and interactivity in museums around the world. Our team earned a scholarship to attend a 2-week entrepreneurship programme in Lassonde Studios, a hub for young innovators at the University of Utah.

Data Science Intern, Amadeus IT Group (Sophia Antipolis, France)
July 2015 - August 2015
Worked in the Travel Intelligence team. Built a framework to monitor the integrity of the 10000+ data files received daily by the company. Extensive use of Elasticsearch, Logstash, Kibana and Apache Kafka.

RELEVANT TECHNICAL SKILLS

C++ - Design of an 8 ball pool game; design of a program which finds the shortest routes between 2 points in the city of New York (using tools from Graph Theory).
Java - Design of an enhanced version of the Snake video game.
Python - ODE solving, phase portrait sketching; conception of learning algorithms, generation of classifiers and evaluation of their performances; exploration of generative adversarial networks with Keras.
MatLab - Simulation of stochastic processes (random walk, Brownian motion, Poisson process, reproduction models, birth-and-death processes).
SQL - Creation and administration of a supermarket database (15000+ entries) during my internship at Knap.
R - Extensive work with supervised learning algorithms (K-Nearest Neighbours, Neural Networks, Naive Bayes, Random Forests, Linear Regressions).

FUTURE RESEARCH INTERESTS

Statistical Learning Theory, Computational Neuroscience, Bayesian Inference, Dynamical Systems, Neural Computing, Graphical Models, Kernel Methods

LANGUAGES

French **(native),** English **(bilingual),** Portuguese **(fluent),** Spanish **(read and write)**