Philippe Demontigny

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EDUCATION

U. OF WATERLOO
Masters in Computer Science
Sept 2014-Present | Waterloo, ON
Cum. GPA: 96.0 / 100.0

WILLIAMS COLLEGE
BA in Mathematics & Statistics, with honors (thesis option)
Grad. June 2014 | Williamstown, MA
Magna Cum Laude
Thesis Adviser: Bill Lenhart
Dean's List (All Semesters)
Phi Beta Kappa Honor Society
Sigma Xi Science Research Society
Cum. GPA: 3.82 / 4.0

COURSEWORK

GRADUATE
Algorithms for Shortest Paths
Applied Machine Learning
Cryptography/Network Security
Computer Graphics

UNDERGRADUATE
Computer Science
Data Structures
Artificial Intelligence
Algorithm Design & Analysis
Theory of Computation
Programming Languages
Creating Games
Mathematics & Statistics
Linear Algebra
Linear Programming
Regression & Forecasting
Bayesian Analysis
Probability
Graph/Game Theory
Teaching Mathematics

SKILLS

PROGRAMMING
Java • Javascript • Python • LaTeX
C++ • OpenGL • HTML • CSS
R • Mathematica

LANGUAGES
English • Japanese

RESEARCH

U. OF WATERLOO ALGORITHMS LAB | Research Assistant
Sept 2014 – Present | Adviser: Therese Biedl
- Studying Computational Geometry with a focus on Graph Drawing. Topics include layered representations of trees, NP-hard problems, and lower bounds.

SMALL REU PROGRAM | Student Researcher
June 2013 – Aug 2013 | Adviser: Steven J. Miller
- Studied generalizations of Zeckendorf's theorem and other integer representations using recurrence relations.

Publications from SMALL 2014:
- P. Demontigny, T. Do, A. Kulkarni, S.J. Miller, D. Moon, U. Varma. Generalizing Zeckendorf's Theorem to f-decompositions. *Journal of Number Theory*, vol. 141, pp. 136-158, 2014.
- P. Demontigny, T. Do, A. Kulkarni, S.J. Miller, U. Varma. A generalization of Fibonacci far-difference representations and Gaussian behavior. *Fibonacci Quarterly*, vol. 52, pp. 247-280, 2014.

TEACHING

U. OF WATERLOO | Teaching Assistant
Sep 2014 - Present | Waterloo, ON
- CS 136: Algorithm Design and Data Abstraction (Winter 2015)
- CS 234: Data Types and Structures (Fall 2014)

WILLIAMS COLLEGE | Teaching Assistant
Sept 2011 - May 2014 | Williamstown, MA
- STAT 101: Elementary Statistics & Data Analysis (Spring 2014/Fall 2011)
- MATH 150: Multivariable Calculus (Fall 2013/Spring 2012)
- CSCI 107: Creating Games (Spring 2013)
- MATH 130: Calculus I (Fall 2012)

PROJECTS

48-HOUR GAME JAM CREATIONS
Mind Crush | Jan 2015
- A game that combines the difficulty of Set with the addictive gameplay of Candy Crush. Created using Javascript and Codeheart.js.

Constellations | April 2013
- A game that teaches graph theory through a series of thought-provoking puzzles. Created using Javascript and Codeheart.js.

MACHINE LEARNING ALGORITHMS
Magic the Gathering (MTG) Price Predictor | Sept 2014 - Dec 2014
- Uses scikit-learn decision tree classifiers to predict the price of MTG singles based on combinations of card attributes.

KamiGo | December 2013
- Uses a neural network to generate moves in the 9x9 version of the game of Go. Programmed using a combination of Java and Python.