Queen's University
Ph.D Breadth Proposal
Your name
Student Number: 000-0000

Supervisor:
xxxxxxxxxx

Supervisory Committee:
Xxxxxxxxxxx
Xxxxxxxxxxxx

Date:

Tokens

Applications (4 tokens)

CISC 859	Pattern Recognition	Mark rec'd	Fall 07
CISC 873	Data Mining		To take fall 09
Google	Web Applications Engineer		June 06-July 07
CMPT 819	Image Processing and Computer Vision		Competed fall 2006

Systems (3 tokens)

CISC 899	Master's thesis		Feb. 2004
CISC 848	Software Reliability and Security		To be completed fall 2009
CISC 853	Introduction to the Computer-Aided Verification of Software Systems		To be completed fall2009

Theory (3 tokens)

CISC 870	Theoretical Aspects of Computing		Winter 03
CISC 872	Parallel Algorithms		To take winter '10
CMPT 831	Intractable Problems and Models of Computation		Completed fall 2006

Description of Non-Course Tokens

Master's Thesis

My Master's degree was completed under the supervision of Dr. James R. Cordy, and was entitled "Transforming Standard Java Objects to Value Objects." In the thesis, I explored the benefits of using source transformation to provide a superset of the Java programming language. This was designed to allow a different and more intuitive object assignment semantics. In addition, I developed a tool called RUST (Refactoring Using Source Transformation), which provided an innovative approach to suggesting automated improvements to source code. A paper on this technique was presented at the REFACE03 workshop at WCRE in British Columbia.

Google: Web Applications Engineer

The roles of this job included server development, scripting and integration in Python, and the application of user interface design principles. Google uses a number of proprietary applications, and I worked with this set of new technologies and software design paradigms. Due to the constant interaction of these applications, I learned the benefits of good software design, and the proper construction of APIs that allow secure and efficient access to services. I used different software development processes, and discussed their benefits in our specific domain with other engineers. I underwent heavy training in topics like database management and efficient memory usage. In addition, I underwent rigourous 'readability' examinations in Python, Java, and Javascript, in order to show that I understood the languages used.

CMPT 819

This course presents fundamental concepts in computer vision and image processing. Topics may include properties of digital images, digital image formats, image acquisition devices, edge detection, convolution filtering, image segmentation, shape representation, image compression, image morphology, spectral analysis, texture, object recognition, motion analysis and 3D interpretation.

CMPT 831

Problems with no known efficient solution are studied; exact inefficient algorithm design techniques are introduced as are efficient approximation algorithms. NP-Completeness proofs are developed as evidence of intractability. Part of the course is a rigorous and systematic introduction to models of computation via formal language theory.

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