

Deeptiman Jugessur

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Citizen of:
Canada, Mauritius

Languages:
Fluent in English, French and Hindi

Academic History:

M.Sc. Computer Science *July 2000*
McGill University, Montreal, Quebec
Thesis Title: *"Robust Object Recognition using Local Appearance based Methods"*
Supervisor: Professor Gregory Dudek

B.Sc. Double Major: Physics and Computer Science *June 1997*
McGill University, Montreal, Quebec

A-levels in Maths, Physics and Chemistry *June 1992*
The Leys School, Cambridge, UK.

Employment history:

Vircom Inc, Montreal [www.vircom.com]
Senior Programmer *August 2008 – Present*

Genetec Inc, Saint Laurent [www.genetec.com]
Senior Programmer *July 2000 – August 2008*

McGill University, School of Computer Science [www.cs.mcgill.ca]
Teaching Assistant: *September 1998 - July 2000*
COMP-208 Computers in Engineering
COMP-202 Introduction to Computing 1
COMP-310 Computer Systems and Organization
COMP-535 Computer Networks

Publications in Refereed Conference Proceedings:

- Deeptiman Jugessur and Gregory Dudek, "Local Appearance for Robust Object Recognition", In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR'00)*, pp. 834–839, 2000.
- Deeptiman Jugessur and Gregory Dudek, "Robust Place Recognition using Local Appearance based Methods", In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA'00)*, pp. 1030–1035, 2000.

Professional Projects:

Spam Engine Improvements. Modified and reworked the existing anti spam engine to decrease the false positive rate while increasing the spam catch rate. This involves the implementation of various text classification algorithms. *[2008 - present]*

- Implementation of a Sender Reputation System.** Design and implementation of an IP address based sender reputation system to disconnect spam generating botnet computers from our mail servers. The system is live in production. I was involved in all stages including putting it into production for a minimal cost. The project is a fusion of C# and SQL. [2008 - present]
- Implementation of a Domain Based Reputation System.** Design and implementation of a domain name based reputation system to recognize spam through the examination of URLs within their bodies. The system is live in production using the same technologies as for that of the IP based reputation system. The project involves various domain name related concepts and an expertise in networks. [2008 - present]
- Implementation of a Website to monitor and control spam traffic.** Design and implementation of internal web sites to display and control various components needed in the spam filtering world to monitor spam traffic. The sites were made in ASP.NET and javascript. [2008 - present]
- Smart IP Camera License Plate Reader.** Port of Genetec's License Plate Reading technology into smart IP cameras. This involved everything from optimizing the license plate reader for a windows embedded environment running on low end processors to making the full solution work robustly in large networks. I was involved in both the hardware and software design of this project due to my expertise in the field. The smart camera was built by our team and we controlled all aspects of the capture and illumination technologies involved. [2007 - 2008]
- Multi Camera Capturing Software.** Design and implementation in C# of software to interface and capture images from different camera models in Windows, under the .NET platform. The software supports various capture devices from *frame grabbers* to USB and is designed to ensure easy integration of new technologies from various manufacturers. This project involved a great blend of low level coding and high level design demonstrating the power of C#. [2005 - 2008]
- Porting of AutoVu software to .NET.** Re-design and re-implementation in C# of the *AutoFind* mobile license plate recognition software solution. This software is currently being used to find stolen vehicles throughout North America. It involved code that captured and recognized license plate images from cameras that are mounted on authorized vehicles searching for stolen or wanted cars. The original version was in C++ and VB6. [2005 - 2008]
- Client/Server architecture using .NET Remoting.** A new implementation in C# using .NET remoting of the *AutoFind* mobile license plate recognition software solution. The new design allowed one to run the capturing and license plate reading software on different computers while allowing *Autofind* to run on client computers without capture specific hardware. [2007 - 2008]
- License Plate Recognition.** Design and implementation of algorithms for license plate recognition (LPR) as well as the optimization of pre-existing code. This process involved writing C code for the extraction and reading of license plates characters from live camera images. This LPR engine is being used in both Genetec's *Fixed* and *Mobile LPR* software. [2000 - 2005]
- Mobile LPR (AutoFind).** Implementation of a mobile license plate reading system. The system consists of a vehicle mounted with cameras, illumination hardware, a global positioning system, layered maps, a touch screen and a PC as well as user friendly software written in C++ and VB6 to allow the operators of the system to perform their tasks easily. It is being used to find stolen cars by law enforcement officers in various cities, as well as for numerous applications in the parking industry. [2000 - 2005]
- Fixed LPR (AutoTrace).** The code is currently being used in a number of airports to manage large scale, parking monitoring. [2000 - 2005]

Other Professional Duties:

Systems Administration. Deployment and maintenance of Real Time Blacklist (RBL) DNS servers in Linux using. [2008 - present]

Systems Administration. System administrator for a network of 40 plus computers in a Windows 2003 Server domain as well as on subnets within client VPNs. Tasks here involve setting up and maintaining servers, user and client computers within their networks, as well as implementing reasonable backup systems. I also have experience with web and mail servers running in Linux. [2002 - 2008]

Hardware assembly and maintenance. Numerous projects involving building and managing hardware systems including the following components: Ruggedized Computers, GPS units, Frame grabbers, Cameras, LED Illumination, Wifi solutions. [2002 - 2008]

Support. Providing hardware and software support for various clients. The clients include law enforcement, city and government institutions from various locations in North America. [2002 - 2008]

Employee training. Training new programmers, systems administrators, installers and support staff. [2004 - present]

Academic Projects:

M.Sc. thesis. Implementation of a general image recognition program (C++) which incorporates various ideas from machine vision. It is based primarily on a dimensionality reduction method known as principal component analysis (PCA). It is a technique used quite widely in the image recognition field as well as in robotics for robot positioning and tracking. The results obtained are impressive, solving a large number of problems encountered in the field. [1998 - 2000]

AAAI Competition. [www.cim.mcgill.ca/~dudek/mume-story.html]

Implementation of software (C++) for McGill university's AAI-96 & 97 (American Association for Artificial Intelligence) mobile robotics competition team. We entered the "Find Life On Mars" event which involved implementing a vision based system to make a mobile R2D2 like robot explore a complex environment and identify objects within that environment. We placed first in the 1997 competition. [1996 - 1997]

Pattern Recognition. [www.cim.mcgill.ca/~deepu/cs644/patternRecProject.html] A Java applet which when given a 3D wire frame object (entered as nodes and edges) proceeds to compute the best angle (according to an algorithm involving the study of viewable surface normals) from which to view the object in a 2D projection. [1999]

Othello game. An Othello game playing program using alpha-beta cut-off search techniques (used in chess programs) and Depth First A* search. The game playing heuristics were based on the positioning of the pieces on the Othello board. [1999]

Microprogrammed digital computer simulator. The complete design of a vertically microprogrammed digital computer complete with microcode written in entirety for 39 instructions including basic ALU and memory operations and variable length cycle timings. A simulator was also written in C to test the validity of the design. [1998]

Telescope Automation. Automation of the telescope at the Rutherford Physics building in McGill university. This involved installing motors into the axes of the telescope and interfacing them to a computer. Software was written to convert stellar coordinates to angles by which the axes of the telescope were rotated on demand. [1997]

Skills:

Programming languages: C# (.NET and Mono), Managed C++, C++, C, ASP.NET, Java, Visual Basic 6

Networking: Client/Server application programming in C# (using .NET Remoting and WCF) and C++.

Scripting: Python, Javascript, Perl, Bash, Csh

Operating systems: Windows and Linux (Fedora and Ubuntu)

Desktop Publishing: HTML and CSS, L^AT_EX, GIMP.

Hobbies:

Brazilian Jiu-Jitsu and Mixed Martial Arts assistant instructor.