

Shahzad Malik

Curriculum Vitae

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Objective

Use my research and development skills in order to develop cutting-edge computer software technologies and products.

Experience

07/2004-Present 3DSolar Ltd. London, UK

Consultant

- Provide research and development of real-time hand tracking software for the company's innovative 3DSolar holographic-like display technology.

09/2002-Present Approach Infinity Media Toronto, ON

Consultant

- Provide research and development of computer vision algorithms for the company's next-generation real-time Virtual Makeover software.
- Develop COM-based modules for the company's existing Virtual Makeover kiosks and web applications.

09/2002-Present University of Toronto Toronto, ON

Teaching Assistant

- *Fall 2002, Fall 2004:* Teaching Assistant for a 4th year/graduate-level Computer Science course (Computer Graphics)
- Responsible for leading weekly tutorial sessions for 20-30 students

09/1999-Present Extended Reality Software Ottawa, ON

Founder, Web Developer, and Software Developer

- Develop and publish shareware puzzle games (*Bubble Frenzy, Mumbo Jumbo, Hexicon, Jiggy*).
- Developed the company web site and coordinated with e-commerce providers to allow online sales of the game software.
- Responsible for marketing and distributing the software online, and assessing the performance of the sales strategies.

05/2001-09/2002 National Research Council of Canada Ottawa, ON

Software Developer

- Developed *StereoTracker* in C++ and MFC, a real-time facial feature tracking system for standard USB web cameras and Windows-based PCs that can reconstruct a user's head motion in full 3D.
- Developed *Nouse* in C++, a real-time single camera nose-tracking system that allows disabled computer users to navigate the mouse cursor using only head movements.
- Co-published papers related to the face tracking research and development.

05/2000-07/2000 Optiwave Corporation Ottawa, ON

Software Engineer

- Designed a key portion of a fibre-optic mask layout tool using object-oriented design (OOD) and UML, based on specifications from the company's scientists.
- Implemented a DXF and GDSII shape import/export system in C++ under Windows NT, with extensions to allow new file formats to be easily added.
- Developed the initial shape hierarchy for the mask layout tool, which consisted of building a simple MFC-based tool to visually represent any imported shape as a set of 2D poly-lines, at a user-specified accuracy.

04/2000-10/2000 Creative Carnage Minneapolis, MN

Contract Game Development

- Designed and implemented the multiplayer TCP/IP client-server software for a 3D Mini-Golf game.
- Developed the 2D graphical user-interface system using WildTangent's streaming 3D technology.
- Managed locally sub-contracted graphic artists in order to develop 2D and 3D game artwork.

09/1999-04/2002 Carleton University Ottawa, ON

Teaching Assistant

- *Winter 2002*: Teaching Assistant for a 4th year Computer Science course (Multimedia Systems and Virtual Reality)
- *Fall 2001, Fall 1999*: Teaching Assistant for a 4th year Computer Science course (Real-time Computer Graphics)
- *Winter 2001*: Teaching Assistant for a 1st year Computer Science course (Introduction to Systems Programming)
- *Fall 2000*: Teaching Assistant for a 2nd year Computer Science course (Internet Applications)

06/1997-08/1998 Cavedog Entertainment/GT Interactive Seattle, WA

Programmer

- Designed and implemented key components of a 3D rendering engine for a Windows-based video game in C++, using DirectX and OpenGL API's.
- Developed the rendering system and front-end interface for a proprietary MFC-based 3D modelling tool for the game engine.
- Developed the game's 3D mesh and skeletal animation subsystem in C++, along with plug-in code for a custom SoftImage model exporter.
- Developed a distributed network lighting system for our modelling tool, whereby complex ray tracing calculations could be offloaded to dedicated slave machines in a distributed manner.

01/1995-02/1996 Neural Storm Entertainment Ottawa, ON

Founder, Programmer

- Developed a 3D video game called *Radix: Beyond the Void* for a US-based game publisher, Epic Megagames.
- Main responsibilities included developing the 3D rendering engine for the game, written in C and x86 assembly language.
- Developed a high-level IPX and serial packet reception library to be used by the game for multiplayer support (head-to-head modem or LAN).
- Responsible for project management duties and interaction with sub-contracted developers for sounds, music, and art.

Education

09/2002-Present University of Toronto Toronto, ON

- ***Ph.D. Computer Science***
- Overall GPA: 3.94/4.0 (A average)
- NSERC Post-Graduate Scholarship PGS-D (2004-2006)
- University of Toronto Fellowship (2002-present)
- NSERC Post-Graduate Scholarship Increased Stipend (2002)
- Ontario Graduate Scholarship (2003, 2004)
- Research areas: Computer Vision, Computer Graphics, Human-Computer Interaction

09/2000-04/2002 Carleton University Ottawa, ON

- ***Master of Computer Science***
- Overall GPA: 11.8/12 (A average)
- University Medal for Outstanding Graduate Work – Master's Level (2002)

- NSERC Post-Graduate Scholarship PGS-A (2000-2002)
- Courses taken: Computational Geometry, Parallel Processing Systems, E-Commerce Technologies, Real-time System Development, and Wireless Networks and Protocols.
- Thesis title: "Robust Registration of Virtual Objects for Real-Time Augmented Reality"

1994-1996, 1998-2000 Carleton University Ottawa, ON

- ***Bachelor of Computer Science*** (Software) – Highest Honours
- Minor in Mathematics
- Overall GPA: 11/12 (A average)
- Dean's Honour List
- University Senate Medal for Outstanding Academic Achievement (2000)
- Lester B. Pearson Scholarship (1999), David A. Golden Scholarship (1998), National Capital Harvard Business School Alumni Club Book Prize (1997), Henry Marshall Tory Scholarship (1996), Entrance Scholarship (1994)

Technical Skills

Extensive knowledge and practical experience in a variety of programming languages: C/C++, Java, Javascript, MATLAB, x86 Assembly, Smalltalk, Pascal, Basic, HTML, Cold Fusion, Perl, VRML, Scheme, Prolog.

Interests & Activities

- Sports and leisure (biking, squash, weight lifting, electronic piano)
- Student member of the IEEE
- Reviewer for *IEEE Software Magazine*
- Reviewer for *IEEE Potentials Magazine*
- Member of the executive council for the CS Graduate Society at Carleton