
Shachar Avni

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(Address, phone number redacted for online version)

Work Experience

Graphics Application Developer (Sep 2016 – Present)

Corel Corporation, Ottawa, ON

- ▶ Extending a suite of graphic design software using **C++**, **Objective C++**, **GDI**, **GDI+**, **Skia**, and **Qt**
- ▶ Adapted the in-house text engine for solid color rendering over the existing XOR system
- ▶ Transcoding Windows-based subsystems of the underlying UI engine servicing all Corel's apps for cross-platform usage: Icons, XML parsing, and UI widgets

3D CAD Tools Developer (Oct 2010 – Sep 2016, 5 years, 11 months)

ThreeDify Inc., Ottawa, ON

- ▶ Extended and maintained 3D CAD applications using **C++**, **ATL**, **OpenGL**, **GLSL**, **C#**, and **COM**
- ▶ Added hardware rendering support and per pixel lighting effects into ThreeDify's CAD applications and optimized the rendering engine for speed
- ▶ Implemented a library for GPU-based mesh voxelization in **C++**, **OpenGL**, and **GLSL**
- ▶ Created the in-house software licensing architecture including a **.NET** web service for automated license requests, a floating license server (**C#** GUI and **Visual Basic.NET** service) and client (**C++** and **WinSock**) and designed the **SQL Server** database backend

Paid Internship Experience (20 months full-time, 8 months part-time)

Software Engineer (May 2007 – Aug 2007, 1 work term, 4 months)

Cognos Inc. (currently IBM), Ottawa, ON

- ▶ Extended the Cognos Logging Console (GUI-based business analysis application) using **Java** and **XSLT**
- ▶ Prototyped a network management tool using **Flex/MXML/ActionScript** and **SOAP**

Automation Developer (May 2006 – Aug 2006, Jan 2007 – Apr 2007, 2 work terms, 8 months)

Halogen Software, Ottawa, ON

- ▶ Implemented automated test scripts in **VBA** using the **TestPartner** automation environment

Systems Analyst (Full-time: May 2005 – Dec 2005, 2 work terms, 8 months)

(Part-time: Jan 2006 - Apr 2006, Sep 2006 – Dec 2006, 8 months, rehired after term completion)

Ottawa Community Housing, Ottawa, ON

- ▶ Developed dynamic web applications using **PHP**, **JavaScript**, and **XHTML**
- ▶ Programmed **SQL Server** backed financial applications using **Visual Basic.NET**

Research Experience

Research Assistant (Sep 2008 – May 2010)
Queen's University, Kingston, ON

- ▶ Created a tool to simulate targeting error in MRI-based prostate biopsies with **C++**, **ITK**, and **VTK**
- ▶ Developed a new algorithm for message culling in real-time decentralized online games using **C**, **C++**, and **OpenGL**

Hobbyist Experience (See my portfolio: <http://www.shacharavni.com>)

- ▶ **Locus**, a cross-platform (Windows and Linux) 3D game engine written in **C++** and **OpenGL**. Developed the Math, Geometry, Physics, Rendering, and Audio systems from scratch
- ▶ **Minor Planet Mayhem**, a 3D first person space shooter game (demo) using **Locus**
- ▶ A **Peer-to-Peer Tic-Tac-Toe** game using **Java** and **Apache Axis** where peers communicate as web services
- ▶ The website www.shacharavni.com, hand-coded **XHTML** and **CSS**

Education

M.Sc. in Computer Science, Queen's University, Kingston, ON (Sep 2008 - May 2010)

- ▶ Thesis: Frontier Sets in Large Terrain Environments with Applications to Decentralized Online Games
- ▶ Average Mark: 90.8% (Queen's does not use GPA)

B.Sc. in Computer Science, Carleton University, Ottawa, ON (Sep 2003 - May 2008)

- ▶ Minors in Mathematics and Japanese
- ▶ GPA: 11.25/12, highest honours, graduated in top 3% of class

Papers Published as First Author

- ▶ "Design of a predictive targeting error simulator for MRI-guided prostate biopsy", SPIE Medical Imaging 2010
- ▶ "Frontier sets in large terrains", Graphics Interface 2010

Awards

- ▶ **Ontario Graduate Scholarship** (\$15000), 2009 (government awarded)
- ▶ **Senate Medal for Outstanding Academic Achievement** (awarded to top 3% of graduating class), 2008 (Carleton University)
- ▶ **Deans' Honour List**, 2005, 2006 (Carleton University)
- ▶ **Michael Oliver Scholarship** (Departmental scholarship), 2006 (Carleton University)
- ▶ **Nortel Networks Scholarship** (Highest tier entrance scholarship), 2003 (Carleton University)

For examples of my work, please see my portfolio at
<http://www.shacharavni.com>