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EDUCATION

2002-2004 M.C.Sc. Computer Science, Dalhousie University, Halifax, NS
Advisor: Dr. Michael McAllister
Thesis: *Perceptual Accuracy of Tone Mapping Algorithms*
1997-2002 B.Math Combinatorics & Optimization and Computer Science (double), Co-op
University of Waterloo, Waterloo, ON

SUMMARY OF INTERESTS

Computer graphics, realistic image synthesis, colour appearance modelling, tone mapping and gamut mapping, digital video, motion adaptive deinterlacing, video compression, global illumination, Monte Carlo techniques and edge-directed image processing.

User interfaces, toolkit design, human computer interaction and software usability.

Networks, protocol design, Internet telephony, multi-party distributed conferencing, instant messaging and presence, routing and public carrier networks.

Mathematics, combinatorics, graph theory, combinatorial game theory, computational complexity theory, probabilistic methods and scheduling.

Linux, software engineering and distribution, XFree86 server development, X client APIs and kernel development.

Audio, analog synthesis, additive synthesis, FM synthesis and digital audio processing.

PROFESSIONAL EXPERIENCE

Since Mar 2004 **Software Developer**, IBM Canada, Ottawa ON
Developer on the Standard Widget Toolkit (SWT) and Eclipse Platform UI teams.
Sep - Dec 2002 **Teaching Assistant**, Dalhousie University, Halifax NS
May - Aug 2002 **Software Developer**, Inscriber Technology, Waterloo ON
Worked on the design and implementation of a rendering engine for realtime video effects.
May - Aug 2001 **Software Developer** (co-op), Inscriber Technology, Waterloo ON
Jan - Dec 2000 **Software Engineer** (co-op), 3Com, Chicago IL
Worked on a VoIP solution based on the Session Initiation Protocol (SIP).
May - Aug 1999 **Researcher**, (co-op) University of Waterloo Networks Lab, Waterloo ON
Authored a SIP stack and client implementation.
Sep - Dec 1998 **Network Support Engineer**, Strategic Network Support (co-op), Newbridge, Ottawa ON
Jan - May 1998 **Programmer**, Frame Relay Group (co-op), Newbridge, Ottawa ON
Jun - Aug 1997 **Programmer**, Frame Relay Group, Newbridge, Ottawa ON
1994 - 1996 High school co-op and summer positions, Nortel Networks, Ottawa ON

FREE SOFTWARE

tvtime The first television application for Linux to provide full framerate deinterlaced video.
<http://tvtime.net/>
exrtools A collection of utilities for manipulating high dynamic range images in OpenEXR format.
<http://scanline.ca/exrtools/>
kphone The first open-source SIP phone application.
<http://ss7.ca/kphone/>
ttrk A MIDI sequencer which can sync to an external clock source.
<http://vektor.ca/audio/ttrk/>

RFCs AND INTERNET DRAFTS

1. R. Mahy, B. Biggs, R. Dean. RFC 3891: The Session Initiation Protocol (SIP) "Replaces" Header
<http://www.ietf.org/rfc/rfc3891.txt>
2. R. Dean, R. Belkind, B. Biggs. PhoneControl: A Protocol for Remote Phone Control (expired)
<http://www.ss7.ca/sip/draft-dean-phonectl-03.txt>
3. B. Biggs. A SIP Application Level Gateway for Network Address Translation (expired)
<http://www.ss7.ca/sip/draft-biggs-sip-nat-00.txt>

ARTICLES

1. B. Biggs and D. Bell, "**Lessons in Packaging Linux Applications**", *freshmeat.net* editorial, 20 Sep 2003
<http://freshmeat.net/articles/view/992/>

TALKS AND PRESENTATIONS

1. "**Open Source and Open Source Developers**", Conference on Engaging in Open Source 2005, Halifax
<http://ceos.dal-acm.ca/>
2. "**Eclipse: Bringing Desktop Applications to Linux**", Desktop Developers' Conference 2004, Ottawa
<http://www.desktopcon.org/2004/>
3. "**Table-Top Interfaces You Can Rotate: Rendering Issues**", poster at Graphics Interface 2003, Halifax
<http://scanline.ca/text/rotation/>
4. "**Edge Directed Image Interpolation**", Dalhousie Computer Science In-House Conference, Dalhousie University, September 2002
<http://scanline.ca/ddt/presentation/>
5. "**Linux Video Development BOF Session**", Ottawa Linux Symposium, Ottawa, June 2002
<http://www.linuxsymposium.org/2002/bofs.php>
6. "**DVD Video Under Linux**", Computer Science Club, University of Waterloo, February 2002
<http://vektor.ca/dvd/dvdtalk-13-feb-02/>

WEBPAGES

1. "**A Comparison of Linear Gradients in Different Colourspaces**"
<http://scanline.ca/gradients/>
2. "**Notes on the CIECAM02 Colour Appearance Model**"
<http://scanline.ca/ciecam02/>
3. "**Frequently Asked Questions on Deinterlacing**"
<http://scanline.ca/deinterlacing/>
4. "**Hue Rotations for Mapping Icon Colour Themes**"
<http://scanline.ca/hue/>
5. "**Refresh Rate Sync In XFree86**" and "**Effects of 10ms Scheduling on Video Refresh**"
<http://scanline.ca/refresh/>
6. "**Technical Notes on DVD-Video**"
<http://vektor.ca/dvd/tech/>