

Curriculum Vitae

Balint Seeber

Education

- **Doctor of Philosophy in Computer Science, 2006 - present**
ViSLAB, School of Information Technologies, Faculty of Engineering
University of Sydney
- **Bachelor of Engineering in Software Engineering, 2002 - 2005**
School of Computer Science and Engineering, Faculty of Engineering
University of New South Wales (UNSW)
- **Cranbrook School, Bellevue Hill, 1995 - 2001**

Achievements

- **2006 – Australian Postgraduate Award (APA) in conjunction with a NICTA Research Project Award (NRPA) from the University of Sydney** – I was also offered an APA and NRPA by UNSW. The APA is awarded to the top prospective postgraduate research students while the NRPA is an endorsement by Australia's ICT Research Centre of Excellence.
- **2005 – Class 1 Honours on completion of undergraduate studies** – Earned 11 High Distinctions out of 14 completed third- and fourth-year computer science courses, most notably placing first in Distributed Systems (which is also offered as a post-graduate course) and scoring 95 for my thesis on 'Real-time unbuffered detection of television commercials?.'
- **2005 – Fifth in UNSW Computer Science & Engineering Undergraduate Performance Awards** – Awarded to the top ten CS&E students in each year level with the highest school-based weighted average mark.
- **2004 – 'One-off' scholarship awarded by Acoustics Laboratory, UNSW School of Physics** – I designed and implemented a computer-controlled bus architecture, slave modules and software interface for use in acoustics experiments where integrated computer control and monitoring are required.
- **2003 – Finalist in Motorola Prize Presentations** – I led a group project tasked with writing a web-based airline ticket booking system, which was selected as one of the five best systems from the year's 30+ groups. The presentations were judged by industry professionals.
- **2001 – 99.25th percentile in University Admission Index** – 13 units of standard subjects and 2 units by correspondence. I was also a recipient of School Colours, the Academic Medal and the Headmaster's Award for outstanding academic proficiency in all areas of study and for varied contributions to my school including involvement in film and drama productions.
- **2001 – Cosmology Distinction Course** – I achieved a High Distinction in this first-year university level programme after accelerating in 4U Maths and 2U Chemistry (HSC level in 2000). I completed my major project on 'The Process and Modelling of Stellar Formation', which included writing the basis of a distributed particle simulation program that is run over a cluster of workstations.

Employment History

- **2006 February-March – Software Developer**, iCinema Centre of Interactive Cinema Research, UNSW:
I was responsible for developing, testing and maintaining a large code base for the T_Visionarium II project. My main achievement was designing and implementing the underlying MPEG-2 video engine capable of playing many hundreds of recorded scenes in a distributed Virtual Reality environment running under Virtools.
- **2006 January – Software Developer**, Business Catalyst, North Sydney:
I connected the backend of an integrated CMS/CRM web solution to several internet payment gateways and continued development of a Microsoft Outlook add-in allowing for seamless interaction with web services.
- **2002 - 2003 – Tutor**, M M Coaching College, Liverpool:
I tutored five classes, covering HSC-level physics down to junior-level English, mathematics and general ability.
- **2002 February-March – Junior Web Developer**, Doubleday Book & Music Clubs, Lane Cove
- **1999 – Work experience**, Animal Logic, Fox Studios

Skills & Experience

Programming Languages

- **C/C++** – Over six years experience. I have completed several medium-sized projects (up to 20,000 lines) across different platforms using a variety of libraries & tools, eg: a Distributed Shared Memory library for Linux.
- **C#/ASP.NET** – One year of experience in creating .NET-based GUI applications and web services.
- **Java** – Used over the past four years for completing a series of small projects utilising Object-Oriented concepts.
- **Assembly** – Experience in coding with the ARM & MIPS instruction sets on an embedded processor development board and an emulated pipelined CPU written from the ground up in VHDL, respectively.
- **Python** – Over four months experience with several bindings (eg: OpenGL, PIL) and Qt GUI development, used to visualise various states of a genetic programming assignment running on Linux.
- **ASP, JScript** – Used for over five years in projects such as the web interface for an airline ticket booking system.
- **Shell/Make** – Used for compilation, and building automated unit testing scripts throughout the last four years.
- **Erlang, Haskell, Prolog** – Touched on during my degree for four months each. Erlang was used to write a distributed re-configurable router network, while a VRML front-end to a web-based game was written in Haskell.

Major Frameworks/Libraries

- **MFC** – Used in all Windows application development for over six years.
- **OpenGL/DirectX** – Used extensively for over five years, most recently in a game engine ‘**TEH Engine**’, a multimedia processing and analysis framework ‘**TehDetector**’ and a streaming video toolkit ‘**NetVideo**’.
- **DCOM** – Added COM interfaces to systems so that they can be accessible via a web interface (IIS) as well as standard RPCs, which were used in the backend administration software of an airline ticket booking system.
- **CORBA** – Enabled RPCs in a large corporate middleware system given as a long-term university project.

Major Software Packages

- **Visual Studio** – Extremely proficient after over six years of both programming and debugging Windows forms and command line applications, as well as application extensions and web services.
- **3D Studio Max** – Over five years experience in basic effects production and game content creation.
- **Photoshop** – Used for over six years mainly for web content creation and basic retouching.
- **Premiere** – Used for over five years in school, university and personal video projects & small films.
- **Dreamweaver** – Over four years experience developing both static and dynamic web content.
- **CVS** – Over three years of experience, including administration.
- **Virtools** – Experience in use and building block development from work on iCinema’s T_Visionarium II project.
- **XCode** – Used to develop the Carbon-based software control interface for the acoustics lab scholarship work.
- **Flash** – Some experience in authoring web content.
- **SQLServer** – Basic administration for web-based projects.

Operating Systems

- **Windows 2000 Advanced Server** – Experience in administration of network and web services, including IIS.
- **Linux** – Used for the past four years. I have made some contributions to open source projects, most significantly adding the features of International Roaming and Monitor Mode to the Linux kernel driver of the Atmel at76c503a-based USB WiFi adapter. I have also set up my own five-machine cluster at home running atop NFS.
- **Mac OS X** – Experience programming within the native environment as well as some system administration.
- **PalmOS** – Some experience with the HandheldBasic & Eclipse development environments.

Non-technical

- **Group Work & Leadership** – I was elected team leader for each semester over three years in the Software Engineering Workshop subject. I was responsible for high-level design, handling of work allocation and component integration, as well as low-level coding and ensuring that my colleagues were on track.
- **Written Documentation** – I have published large amounts of documentation for these systems in the form of detailed software specifications and architecture overviews. Many reports have totalled over 100 pages and were typeset using Latex.
- **Communication** – I have given many presentations in which I explained designs and showcased our systems. This culminated in my demonstration of the features of our airline ticket booking system for the Motorola Prize, and later my thesis for the Canon Information Systems Research Australia Project Prize.
- **Languages** – I am fluent in English and Hungarian.

Interests

- The passion I have held for creating electronic contraptions from an early age has led me to undertake a multitude of personal projects that vary in scope. I often explore my own ideas, which can result in developing software, building hardware, interfacing electronics to computers or simply satisfying my curiosity. Some of the larger projects I am currently working on are:
 - **'TEH Engine'** – A game engine that uses the latest advances in consumer hardware, features a generalised, extensible architecture (also suitable for real-time animation playback) and a dynamic data binding engine allowing for easy loading, saving & run-time access of data, such as configuration scripts and scenes from 3ds max. Object-Oriented refactoring techniques learnt at university were applied to the initial version to make the design more robust. Recently I used it for a 'tearable' cloth simulation.
 - **'TehDetector'** – An extensible multimedia processing and analysis framework that underpins the research I conducted for my undergraduate thesis. It arose from the need to test multiple interdependent classifiers in real-time using both stored videos and live digital television feeds – requirements that are not fulfilled by any openly available packages.
 - **'rFFT'** – A program that converts pictures into sound by performing, in part, a 'reverse Fast Fourier Transform' on input bitmap data. I pursued this idea with its potential applications to steganography in mind.
 - **'AudioDataDecoder'** – An auto-calibrating software decoder that demodulates a Frequency-Shift-Keyed audio signal into its underlying binary data stream in real-time. Machine learning techniques will be utilised to identify structure in the raw data and extract any human-readable information.
 - **'WebRadio'** – A networked system for remotely controlling and listening to my amateur radio receivers over the internet using only a web browser and a streaming audio client.
 - **'NetVideo/Audio'** – A series of applications that enable the broadcasting and reception of video and audio streams over a network, which I have used in my other projects (such as the two above). To ensure robust real-time performance, I employed my own custom communications protocol.
 - **'Autonomous Earth Driver'** – A model racing car I equipped with a GPS receiver and microcontroller that can navigate its own way through each set of entered waypoint coordinates from almost any position on Earth.

Full details of all of my work, including university and personal projects, can be found on my website at:

<http://spench.net/>