

Andrew Noske

IT Portfolio



Last Updated: 13/6/2010

NOTE: The latest version of this document is available here:

<http://www.andrewnoske.com/professional/downloads.php?dateit=13/6/2010>

NOTE: This document is intended to extend on my resume. It details my projects, experiences and achievements in IT. If you wish to see my educational records, and a full list of awards and achievements (not just those specific to IT), feel free to ask me for a current copy of my resume or download it from the web.

Personal Information

- **Name:** **Dr. Andrew Brett Noske**
- **Mobile:** 0405149507
- **E-mail:** andrew_noske@yahoo.com
- **Date of Birth:** 18th March 1983

Personal Career Objectives in IT

My goal is to forge a career in industry and/or government/academia as a researcher in systems biology, computational biology, software engineering, programming or graphics design. After gaining experience I aim to eventually become either an IT project manager or researcher and also have great interest in teaching or lecturing in the IT area. I'm happy to work anywhere in the world, so long as it's a job I find challenging and rewarding, and a place where extra effort and initiative is appreciated.

Awards in IT

- **1999** • Web Page Design Competition (Business Liaison Association Inc, Cairns) – 3rd place
- **1999** • Finalist in Asia-Pacific Qld IT&T Awards
- **2000** • Finalist Far North Qld & Business Liaison Assoc. IT Awards for Grade 12
- **2001** • JCU – Software Engineering Australia (SEA) Scholarship – accepted *
- **2004** • Bioinformatics Honours Scholarship JCU – accepted *
- **2004** • Hunter Medal in Computer Science **
- **2004** • Don Close Prize in Software Engineering *
- **2004** • Don Close Medal for Science, Engineering and Information Technology (*for best results & community service in the Faculty*) ***
- **2004** • Awarded JCU University Medal ***
- **2005** • Offered APA Scholarship at JCU, QUT and UNSW, with Vice Chancellor’s top-up at QUT and top-up at JCU – not accepted
- **2005** • Offered APA Scholarship at UQ – accepted ***

Work Experience in IT

- **Mar-Nov 2004** • *Part-time tutoring at James Cook University, for the following subjects:*
 - “Software Engineering” (2004 Semester 1),
 - “Object Oriented Software Engineering” (2004 Semester 2),
 - “Computer Graphics” (2004 Semester 2).
- **Mar-Nov 2003** • *Part-time tutoring at James Cook University, for the following subjects:*
 - “Multimedia 2” (2003 Semester 1),
 - “Internetworking 1” (2003 mid-year block),
 - “Internetworking 2” (2003 Semester 2).

Having the chance to tutor has been fantastic. In addition to the challenge of teaching on the whiteboard, many subjects changed significantly from year-to-year, and by tutoring a subject I found I gained a higher level of understanding of the material. The extra money was definitely handy, but the most rewarding aspect of tutoring was helping and interacting with students.

- **Mar 2004** • *Created a web survey for Lyn Courtney, president of JCU’s mentor program.*

This was only a small job in that it took under 10 hours, but I was proud of finishing it quickly and satisfied I had done a good job. The project was to turn a large survey form (150 questions) into a multi-page web survey which used PHP, JavaScript and MySQL to allow students to complete the survey, validate all entries, store results, and enable secure access to results. The previous year, Lyn had administered the survey by handing out paper copies and typing results manually.
- **Jan-Mar 2003** • *Designed website for Queensland Senator Jan McLucas, Shields St, Cairns.*

This was a particularly good experience. I worked mostly in Jan’s office and a little at home and was very pleased with the result. As well as guiding Jan through the process of making an effective website, I learnt a bit about politics and did many odd computer jobs around the office, including researching and buying her a good digital camera. Jan and I featured on a local television news program when the website was launched in March.

You can see the site at: <http://www.janmclucas.net/>

Note that I did all the design work (including many Flash animations), but the site management scheme and web hosting was done by Get Started Australia, Melbourne. It wasn’t until after I’d finished working on this job that I started learning dynamic web site languages like PHP at university.
- **Jan-Feb 2003** • *Designed Flash animation for Tescorp, Comport Street, Cairns.*

This simple animation was designed to be a main feature on a website for a new product innovation called a hull scrubber (a device for scrubbing the hull of boats without the boat leaving the water).

IT Projects and Achievements

2005-2009 PhD at University of Queensland (UQ):

- **2006-2010** • Created the program “*Interpolator*” using C++, OpenGL and Qt. *Interpolator* allowed us to rapidly segment “tomograms” – 3D density distributions maps collected using Electron Microscope Tomography (a process similar to CAT scans) – and to generate and analyse 3D mesh models of cells. *Interpolator* facilitated semi-automated segmentation 10-40 times faster than the traditional technique of manually drawing every slice and has been used routinely by members of my laboratory since 2007 – saving hundreds of hours of labour in segmenting cells. *Interpolator* has also been used as a testing environment for my PhD work, used to run simulations and spatially analyse data for publication. More recently I have started incorporating my novel algorithms and two other plugin programs into the program IMOD (<http://bio3d.colorado.edu/imod/>) so that the thousands of academics which use this program can also benefit from faster segmentation; thus allowing them to segment tomograms in days instead of months and weeks instead of years.
- **2005-2007** • Was the webmaster for the Students of the Institute of Molecular Bioscience (SIMBA) club at UQ and created for them a simple website with an easy-to-use content management scheme. Due to the security-conscious nature of our institute, it was required that this site be hosted on an intranet so that it could only be accessed inside our building.
- **2005** • Wrote a “*Hotlink Generator*” program in C# during free time. This program allows the user to download sequences of images/movies/files on the internet – files which they would otherwise have to download/view separately, or search for across a range of page. This project is something I would like to come back to and publish on SourceForge.
- **2005** • Created a personal and professional website for myself (<http://www.andrewnoske.com/>) before moving to Brisbane. The website is split into the following three sections:
 - **Professional** – includes my resume and online portfolio
 - **Student resources** – containing advice and resources for students, including most of my old assignments, source code, and other files
 - **Personal** – with my own music, artwork, humour and files for friends.It’s a surprisingly big website which contains a large amount of the work I’ve done since primary school. I wrote all the code myself using PHP (except for the photos page), and it features interactive music, my own artwork gallery and several pages where users can add entries, such as the text-file based guestbook.

2001-2004 Bachelor of IT with Honours at James Cook University:

- **2004** • Created a small, aesthetic “*Mosquito Spread Animation and Simulation*” program using Macromedia Flash MX (and Action Script). This “program” was designed to show results collected by Dr Scott Ritchie, a medical entomologist at the Tropical Public Health Unit, and was screened on ABC TV’s *Catalyst* in February 2005. It also demonstrated the proposed role of the IT department of JCU in simulating mosquito movement and outbreaks of Dengue fever.
- **2004** • Created, optimized and analysed a *Molecular Dynamics Simulation program* using C++ as an honours project. The main goal of my research was to invent, test and document various methods aimed at improving the speed of the simulation for large numbers of pair-wise interacting atoms. In the Molecular Dynamics simulation I was testing, force must be calculated between all particles within a certain cut-off radius of each other; so it was necessary to compile a list of all neighbours within a fixed radius – which is called a *self-spatial join query* problem. In testing, I used an interaction model called *Lennard-Jones Pair Potential*; however my code was designed to form an efficient engine layer for interacting particles, so my classes could be easily extended and adapted to simulate and test any type of pair-wise interaction model. Many methods, including space filling curves, verlet neighbour list and fixed cell lists were analysed. Although not critical to the project, I also added a front end using OpenGL and Microsoft Foundation Class (MFC). I learnt a lot about research, scientific process and scientific writing during this project. I read two very good C++ programming books, but was slightly frustrated by the fact I spent probably only 20% of my time doing serious code. Most of my time was spent batch processing simulations (which took hours in some cases) so that I could output performance

results. These were written into a CSV file, which I would then import into Excel for graphing and analysis.

- **2003** • Created a “*Business Environment Resource Tracker (BERT)*” website with three other team members using JSP and Java. BERT allows users to see what resources are available and make bookings for rooms, cars and equipment - each with different rules - and facilitates secure login for administrators and normal users. The program was originally intended for WETMA (Wet Tropics Management Authority), but sadly our contact with WETMA ceased unexpectedly and we had to be content with doing it as a university assignment only. This project was part of *Object Oriented Software Engineering* subject which taught special object oriented principles including GRASP and GOF. We also had to learn, use and incorporate automated testing (using JUnit and Robot), database management (MySQL), source control (MS Source Safe) and use-case documentation into our project.
More importantly, this project represented a valuable lesson in teamwork. I teamed up with conscientious workers, who, although not particularly strong coders, each contributed different strengths, including one member particularly good at documentation and one with experience in small business. The finished program was successful because we all worked “*smart and not too hard*”, and we scored over 100% by doing much better than other teams and putting in the extra work for bonus marks. I also learnt the importance of having a team leader able to keep everyone on track and make sure documentation and code were always kept consistent.
In the previous semester, I was part of a project which wasn’t so successful. I joined a team of very intelligent people who turned out to be over-ambitious and, unlike me, left work to the last minute. Our goal was to produce a multi-player client-server blackjack game, but due to poor planning the program was buggy, incomplete and didn’t match our documentation. Our biggest problem was the lack of a proper project manager (we naively shared this role), feature creep and heroics, whereby one member took over more code than he could manage and was reluctant to let us help. The next semester I refused to join my friends’ group and instead found people who were more level-headed and realistic.
- **2003** • Created a “*3D Dance Factory*” program with Visual C++ using the GLUT library for OpenGL. The program is a great tool in teaching people how to dance; allowing users to create, load and save animations of human characters. More importantly I applied Object Oriented principles to write clean and proper code. The project features several different key-frame interpolation techniques, the ability to vary the play rate, complete camera control and music. I also implemented a large “keyboard chart overlap” to help remind the user which shortcuts keys perform which functionality.
- **2003** • Created an “*Exam Creator*” program using Visual Basic, as well as many other languages (including PHP, MySQL & JavaScript). This program allows users to create, load and save exams as a MS Access DB file. Exams comprise of true/false, multiple choice, multiple section and exact answer questions, and these questions can be arranged in sections. Exams can then be exported as any of the following formats:
 - **Non-assessable exam** – generates HTML and JavaScript web pages which students are encouraged to use as a learning aid.
 - **Assessable exam** – allows the lecturer to enter a list of students and passwords, and then generates a series of PHP and MySQL files. Unlike the non-assessable exam, uploading this assessable exam to the web requires MySQL and PHP servers. The result is a secure environment where the exam supervisor logs in to enable the exam for students, and can view results as the students enter answers.
 - **As a word document** – this feature automatically opens MS Word, and then uses native commands to insert all the questions etc. It also has an option to generate a “JCU exam” which uses a template to produce an authentic JCU exam.The use of templates was a great idea, because it allows you to change the look of exams without altering the VB code. The disappointing aspect of this project was that JCU bought a professional program “Exam View” for a lot of money shortly before I told them they could use my program for free.
- **2002** • Created a two player *Backgammon game* using Java (Java is architecture neutral – therefore this program can run on any machine without modification) – another university project.
- **2002** • Created several *Flash games* – one of which was a “walk horizontally” platform game with proper gravity, bouncing grenades, music etc – a university project for a Multimedia course.

- **2001** • Created a completely *Flash website* (using *Macromedia Flash*) for an actual web design company – it featured many pages, interactive music, animations etc.
- **2001** • Created two low file size *Shockwave games* using *Director* as part of a university project for a Multimedia course.

High School – Smithfield State High School (SSHS):

- **2000** • Received a VHA and Subject Dux in Information Technology during High School.
- **2000** • During school’s work experience program I enjoyed a week with engineers at Flanagan Consulting Group, Cairns, using *AutoCAD* and helped in report preparation using *Word*.
- **2000** • Created a website and resource folder for Smithfield High students to access on school computers providing information and records for future Student Council members, as well as advice, humour and useful templates (timetables, palm cards, revision notes etc) for current students.
- **1999** • Created *several 3D computer graphic images and animations* using 3D Studio Max (one of which can be seen at the top of this page).
- **1999** • Participated in QANTM Cybercamp at Cairns TAFE, which included lessons to use programs such as 3D Max and Flash.
- **1995-2000** • Created several databases for school assignments in *Access*. The last of these was a fairly large, fully operational relational database for an actual consulting company complete with documentation and inclusive of forms and complex queries.
- **1995-2000** • Created several small applications using *Microsoft Visual Basic* and *C++* programming languages. Also designed a larger, memory game in *Visual Basic*. This card game has many configurable options (including different size boards, cards & timers), supports up to four human and computer players and involves a small element of artificial intelligence.
- **1995-2000** • Created the following websites during high school (although I think most are no longer online):
 - Wet Tropics Waterways – (individually created during Grade 10 as a school assignment)
 - SSHS Student Council – (individually created during Grade 11 for the Student Council)
 - History of Trinity Beach – (created in a team of two during Grade 12 for the Australian Schools Web Competition 2000)
- **1995-2000** • I pride myself on making organised and aesthetically pleasing computer documents. Notable projects include:
 - An environmental project using *Word*, *Publisher* and *Excel* (for report, tables, graphs and a poster) which in 1999 was one of three Australian finalists for Stockholm Junior Water Prize, and also 1 of 16 finalists in BHP Science Awards
 - A bench design and building project for Engineering Technology with *PowerPoint* presentation to the School Parents Committee, and report with *AutoCAD* figures which won a CSIRO Silver CREST Award, and a Merit Award in BHP Science Awards 2000.

Online Websites

- <http://www.andrewnoske.com/> - More of a personal site than anything else; includes much of my project work and resources for the benefit of IT students.
- <http://www.andrewnoske.com/wiki/> - My own wiki site and “online notebook”, featuring numerous articles on computer program and programming tips.
- <http://www.janmelucas.net/> - I designed this site for Senator Jan McLucas (see Work Experience)



Software Experience

Note: I am familiar with many different applications, however only the larger and better-known of these have been listed below.

Graphics, Web and Animation Programs

- All Adobe products: Photoshop, Dreamweaver, Illustrator, Flash, Fireworks, Premier etc
- Cinema 4D
- 3D Studio Max
- AutoCAD
- Paint Shop Pro

Programming

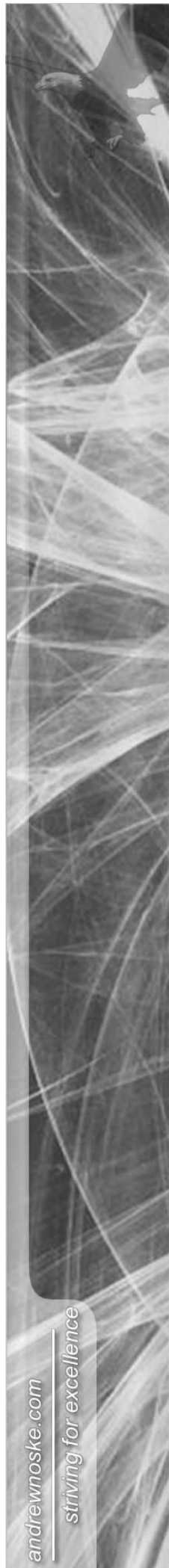
- Visual Basic
- C++ (and OpenGL)
- C#
- Java (familiar with most editors)
- PHP & MySQL
- JSP

Other

- All of Microsoft Office products: Word, Excel, Publisher, Access, PowerPoint and Visio
- Windows and MAC OS X Operating Systems

Software Skills Matrix:

Proficiency				Software	Comments and Examples of Use
<i>excellent↔limited</i>					
Microsoft Office Applications:					
X				MS Word	<i>I know and use most of the features of Word, as well as writing my own Macros.</i>
X				MS Excel	<i>I use Excel frequently to analyse data, but I also find it surprisingly useful for drawing large, complex diagrams.</i>
X				MS PowerPoint	<i>I'm known to make great presentations.</i>
X				MS Access	<i>Familiar with complex DB queries, creating VB form etc.</i>
	X			MS Publisher	<i>Useful for producing someone quick-and-dirty (like a card).</i>
	X	X		MS Visio	<i>Not a bad program for drawing schematics.</i>
	X			MS Project	<i>A good habit to get into.</i>
Graphics, Web Design, Sound and Animation Programs:					
X				Adobe Dreamweaver	<i>I use Dreamweaver to do almost all of my web design and development.</i>
X				Adobe Photoshop	<i>Have written many of my own scripts, macros and visual basic interfaces which interact with Adobe Photoshop.</i>
X				Adobe Illustrator	<i>Use to produce figures for scientific publications.</i>
X				Adobe Fireworks	<i>My favourite program for rapid graphic design projects.</i>
	X			Adobe Premier	<i>Produced several promotional videos during PhD.</i>
X				Adobe Flash	<i>Is one of my strongest programs, and enjoy ActionScript. Produced: several interactive games & websites.</i>
		X		Adobe Director	<i>Produced: simple shockwave games & an interactive portfolio.</i>
	X			Adobe Captivate	<i>I'm a big advocator and producer of video tutorials, but prefer TechSmith's Camtasia Studio, SnagIt and Snapz (for Mac).</i>
	X			Cinema4D	<i>Used Cinema 4D to create many animation of cells, and have programmed several of my own COFFEE and C++ Cinema 4D plugins to accelerate the design process.</i>
		X		3D Studio Max	<i>Have created several models, some featured on the cover page.</i>
		X		AutoCAD	<i>Produced: work bench design (subsequently used to build a bench in an engineering room in 2000) & imported it into 3D Studio Max for animation.</i>
		X		Amira	<i>Started with this and Imaris (similar program) only recently.</i>
	X			QuickTime Pro	<i>I often use QuickTime to create .mov files.</i>
	X			Paint Shop Pro	<i>Don't use much since it became bloatware.</i>
		X		Cakewalk Pro Audio	<i>Made a few tracks.</i>
		X		MS FrontPage Editor	<i>Satisfactory for small sites, but no substitute for Dreamweaver.</i>
		X		MS Photo Editor	<i>Although much prefer other programs</i>
Programming Languages:					
X	X			C++	<i>I have over five years experience with C++ (and OpenGL). Produced: "3D dance factory program" and did all my PhD programming in C++. I have become proficient with Qt (as in Qt framework and Qt Creator) and also wxWidgets.</i>
	X	X		Visual Basic	<i>It's a babyish language, but was great for rapid development. Produced: memory board game and "exam creator" program.</i>
	X			C#	<i>Much prefer this to VB! Is easier to convert code to/from Java.</i>
	X			VB 6 Macros	<i>Saved countless hours during my honours by writing my own Macros for Word, Excel and even PowerPoint (see my website).</i>
	X	X		Java	<i>Great idea, although slow and can be nasty to setup.</i>
X	X			PHP	<i>I like PHP, but I'd also like to learn and try ASP using the MS .NET environment (I've heard it's easier).</i>
		X		JSP	<i>Tutored how to setup/use Apache Tomcat.</i>
	X			MySQL	<i>We used lots of Oracle at uni (granting permissions etc).</i>
Programming Environments:					
	X			.NET Environment (for C#, C++, VB)	<i>I'm a big fan of code folding – one of the reasons .NET is my preferred IDE.</i>
	X			Visual Studio 6	<i>Used throughout undergrad – especially MS Visual C++ 6.</i>
	X			X Code	<i>Used to create two GUI program and several C++ plugins for IMOD.</i>
	X			Eclipse/NetBeans IDE	<i>The main IDE I have used has been NetBeans (SunStudios).</i>



Mac OS Specific Programs:					
X				KeyNote	<i>KeyNote is easy to use and superior to MS PowerPoint in every way. If I'm using an Apple I can use KeyNote to setup a template and make a stunning slideshow.</i>
	X			Snapz	<i>The only good program I've found for video screen capture on a Mac.</i>
Other:					
		X		MS Visual Source Safe	<i>Have had bad experiences with this – CVS is better.</i>
	X			AutoHotkey	<i>Very useful for automation of repetitive tasks.</i>
			X	MatLab	<i>Little experience so far, but eager to learn.</i>
X				IMOD	<i>IMOD is a set of image processing, modelling and display programs used for 3D data, including electron tomography reconstructions of serial sections.</i>
	X			SerialEM	<i>SerialEM is a control program for Transmission Electron Microscopes by the same authors responsible for IMOD.</i>
Operating System Environments:					
X	X			Microsoft Windows Vista, XP, 2000, 98	<i>Also have some networking experience with Windows.</i>
	X			Mac OS X	<i>My co-workers in the IMB use Mac computers and I regularly use these machines to collect results and share data, and program using XCode. Very nice operating system.</i>
		X		Linux – Red Hat	<i>I have access to a powerful Red Hat workstation at UQ (as of Oct 2005), although haven't used it as much as I wanted.</i>
		X		Unix shell/terminal	<i>I know all the basic text-based commands, but am by no means an advanced user when it comes to administration.</i>