Design Computing at the University of Sydney
Montage composition
Design Computing student work
The Bachelor of Design Computing is a unique degree that combines the creativity of design with the practical and technical knowledge of computing. The program focuses on the creative, technical and aesthetic possibilities of computer-based design through the study of major areas: Design, Programming, Interaction and Modelling. Students receive a breadth of knowledge from study in other related disciplines from throughout the university.
Why did you apply for Design Computing?
I was doing a Computing Science degree and hating it, so I tried a bunch of different subjects from Psychology to Accounting. I enjoyed the Design Computing subject I chose the most because it incorporated technical skills with creativity, it really inspired me so I applied to start the course the following year.

Was the degree what you expected?
I expected the course to be similar to that first subject I did. What I soon learned was that there was a very diverse range of subjects available, so every semester the degree took a different turn. This ensured that my experience was extremely varied, and I graduated with a lot of skills that I never expected I would have.

Was there anything that surprised you?
It sounds trite, but I was consistently surprised throughout my degree with the quality of the work we all produced. I doubt that any of my classmates expected that they would be able to develop such interesting software and artwork at the beginning of the degree.

Also, I was surprised by the friends that I made. Our year group was quite small and sharing many classes and working together in groups saw us form lasting friendships which is pretty unusual when compared to other degrees.

Where are you working now?
I work at Massive Interactive. I started here as a graduate straight out of uni.

Having graduated, what are you working on now?
Massive understands that Design Computing students graduate with a wide range of skills, so I split my time between flash development and solution design. Right now I am building a small website for a financial services firm, and working on the UI/UX for a big consumer electronics project. Unfortunately I haven’t had time recently for personal projects, but I do have a few ideas for an interactive art project brewing.

Is there any advice you would give students considering this degree?
Be prepared to do programming. Be prepared to work hard and be self motivated, you will be rewarded with interesting, unique, creative and surprising projects, and a diverse skill-set which will enable you to continue creating long after graduation.
Audentes fortuna juvat
Fortune aids the daring.
Life is a cabaret

The programming stream teaches you software architecture, development and programming within a design context.
Learn about the concepts behind 2D/3D modelling, animation and the design process that enables computer automated design.

Concept designs for a computer game- “SIX NIGHTS” Final year group project

MODELLING

Develop narratives and produce interactive objects through interactive multimedia and physical computing.

INTERACTION

Material study (texturing) for this character was another challenge at this stage. The goal was to create effective texture using colour map and noise map only, not image based texturing, to prevent performance overload in the game engine.

The finished model, 2337 Quad polygon faces
You’ve just completed your first semester of the degree, was it what you expected? In some aspects yes because I expected to learn a lot of background information that will help us with the rest of our degree. But in other aspects it was more interactive - looking at different technologies and other things we didn’t expect to do in first semester. We learnt a lot of practical skills in programming and a film elective that will help us.

Were you always interested in studying Design Computing? I was always interested in doing a computer degree of some sort and I was looking at all the different degrees that the University offered. I came across this course because I was not just interested in doing something with computers but also something that was more creative and something that was more interesting to me as opposed to a programming course. When I saw this course, I decided it was the one I wanted to do.

What has been the most enjoyable part of the degree? Besides doing a lot of practical work and learning a lot of different things like film editing - that was a lot of fun – getting to meet all the different people and getting to know the other students and the areas they’re interested in. As it is such a broad degree, everyone has their own things that they’re really good at or interested in so it’s interesting working with them and learning from my other classmates as well the lecturers.

How have you found the transition from studying at school to studying at University? It is a lot different to school. It’s a lot more casual in some aspects as there’s not a teacher coming up to you and asking “have you done your homework?”. You can work with the lecturers and other staff who help us work on our projects. It’s a lot different with the amount of hours you’re spending at Uni – you’re spending the same amount of time but it’s more flexible.

What are your classmates like? It’s a different mix of people from different places and ages so it’s interesting being quite young, first year out of school and entering this degree. There were some people who had other experiences – there’s some people from TAFE and some international students so it’s great getting to know them and where they come from and all the different things that they’ve learnt in their backgrounds. I’ve made a lot of friends too which is good. A lot of my other friends in other courses have found that they’ve got much bigger lectures with classes all over the place so you don’t really get to know people as well but because it’s a smaller class you get to know people pretty quickly.

At this early stage, is there any particular interests you wish to pursue in the degree? Not particularly. This semester I was more interested in our film elective and some of the other programming where we got to do interactive stuff but I’m still open to what I want to do. I’m looking forward to this semester as we’ve got a lot of interesting electives coming up.
## Course Structure

The Bachelor of Design Computing focuses on four major areas of study:

### Design
Design studios and lecture-based units of study serve as the principal forums for the conception and implementation of your designed works. You will learn about elements of design including concept development, making portfolios, and visual literacy. Subjects in this area include:
- Digital Design Studio
- Interaction Design Studio
- Information Visualisation Design Studio
- Sound Design and Sonification
- Understanding Design & Cognition
- Human-Computer Experience Design Studio

### Interaction
Interaction deals with designing the contact surface between humans and computers. The Interaction Design Studio is the fundamental unit of study in this area. Software used in Interaction design include Director and Max/MSP+Jitter. Subjects include:
- Collaborative Virtual Environments
- Real Time 3D Multimedia
- Advanced Interactive Multimedia Design

### Modelling
Modelling takes on two key directions: modelling for the representation of form and simulation such as for computer-aided design and animation, and modeling the design process to enable computer-automated design. Software may include Maya and Virtools. Subjects include:
- 3D Modelling
- Principles of 3D Animation
- Database Systems 1

### Programming
Programming, still the most sought after skill in industry, is the glue between your ideas and the production of your creative projects. Programming is situated within most units of study. Programming languages you’ll learn include PHP, Java, JavaScript and Processing. Students will undertake the following subject in this area: Design Programming.

### Honours
The Bachelor of Design Computing honours degree is an extra year of full-time study engaged in a research task or practice-based creative work supervised by a member of academic staff. There are scholarships available specifically for this Honours year.

The award of honours is an avenue by which the best students can be recognised. It provides training in research and creative practice and provides evidence of your ability to formulate a problem, research and investigate it, and to produce a response to it.

### Sample 3-year program

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Sample 3-year program. The way your program is structured will depend on the electives you choose.
Core & Elective Subjects

Your subjects in the Design Computing program include core and University-wide electives – it’s intensive and it’s flexible! The degree incorporates the knowledge learnt in four major studios which broaden your knowledge on significant themes in Design Computing, as well as develop your communication and design process skills:

**Digital Design Studio**
Students will develop an understanding of how to conceptualise and communicate design concepts through image, shape, lines, colour, composition, morphing, layout, and text; be introduced to digital image representation and technology through design projects; become proficient with the elements of digital design technology including digital images, vector graphics, font, montage, photography; develop skills in digital imaging software such as Photoshop, and graphical layout software such as Illustrator; and develop experience with significant digital design issues.

**Interaction Design Studio**
This studio introduces interactivity and multimedia through design projects. Students will develop narrative and storytelling through non-linear interactive multimedia. Elements of interaction design including menus, hotspots, screen design, motion, animation and sound integration will be addressed for various media, including the Internet, CD-ROMs, kiosks, interactive TV, broadcast media and DVD. Management and organisation of interaction through storyboarding and prototyping will cultivate methodologies for responding to a brief.

**Information Visualisation Design Studio**
The field of information visualisation focuses on how non-physical data can be effectively represented to users, in an interactive and automatic way. This studio will introduce the principles of information visualisation design, with special attention to metaphoric mapping, human-computer interaction, user engagement, and interdisciplinary insights. Topics will include: abstract data visualisation (graphical, ambient or non-visual); metaphor creation and evaluation; interdisciplinary influences; server-side programming and client-side scripting.

**Human-Computer Experience Design Studio**
New technologies in design computing have the potential to not only improve the quality of designs, but to change the way we design and the kinds of design we create. Meanwhile the tethering of humans to machines constructs an intimacy which pushes human-computer interaction (HCI) towards human-computer agency. What new capacity exists when people and machines are brought together in the embodiment of agency? This studio will cover designing innovative and novel forms of human computer interaction, and the design of HCI for objects that have information content, embedded computation, and intelligence. The students will explore through designing the evolution of design computing from one in which humans manipulate computing to create objects to one in which humans and computing devices co-create objects that create humanistic experiences.

Electives are chosen from a range of subjects from within Design Computing, as well as those from the Art Workshops, IT, Arts, Economics & Business, and Science - The choices are endless. Electives are intended to support and develop your specialised interest area. For a full list of subjects, please see: [www.usyd.edu.au/handbooks/handbooks_admin/architecture.shtml](http://www.usyd.edu.au/handbooks/handbooks_admin/architecture.shtml)

You’ll be spending about 20 hours each week at Uni, attending lectures, tutorial and studio classes. Classes are mainly project-based, where you demonstrate your skill through a final design and written material. Study material is usually assessed through project work rather than exams.
Nikash Singh
Design Computing Honours Student

Why did you apply for Design Computing?
I wanted something that would incorporate my skills in Design with my interest in all digital media. I was inspired, at the introductory talks, by Professor Mary Lou Maher and her vision of an engaging and versatile degree. I’ve since been inspired by many more. I wanted a taste of everything, web, print, 3D, movie-making, photography, programming and the course delivered in spades.

Was the degree what you expected?
It was more than I expected. I went into the course skeptical about what careers it would ready me for, only to discover an entire Design world of possibilities and pursuits. The course opened my eyes to Design professions I didn’t know existed and convinced me I wasn’t just chasing a dream; I was following in the footsteps of trailblazers who genuinely enriched lives.

Was there anything that surprised you?
Well, the deadlines constantly kept surprising me, no matter how well notified I was of their impending doom. But seriously, I was pleasantly surprised with all the technology we got to fiddle with, the tight-knit and supportive class environments and the dedication of some of the staff. If you don’t get a class with Rob SAUNDERS, Demand it!

You are currently enrolled in honours, how did this happen?
By miracle. I was about to wrap up my life at Uni (reluctantly) when a chance meeting with one of my favourite Lecturers ended with the question “So what’s next for you?” and lead to a trip down to the mezzanine where I was allotted a research desk. I did my best to contain my excitement by jumping up and down and playing “Born to be wild” (Steppenwolf) on my iPod as I walked home that day.

What is your honours project?
If I told you, I’d have to kill you. Seriously. I’m trying to keep it under wraps. But for the benefit of this publication (and so I don’t come off as your stereotypical antisocial research gremlin) I will divulge that it entails “Designing and evaluating a Human-centered browser extension” which investigates user behaviours and preferences regarding online social interaction. Bit of a mouthful eh?

Is there any advice you would give students considering this degree?
Yes. The Architecture building is ironically unattractive outside, but deceptively beautiful within: Don’t judge this big concrete book by its cover. Also, programming is not the natural friend of most Designers, but it is to Design what jam is to peanut-butter. The sooner you get bit by the programming bugs, the sooner you’ll stop having them.
Applicants who are citizens or permanent residents of Australia, or citizens of New Zealand, should apply through the UAC. If year 12 or a tertiary preparation course is your highest level of study, you will be considered on the basis of ATAR. If you have completed an AQF diploma or advanced diploma or one full time year at university, you will be considered for a place on a combination of ATAR and your tertiary grades.

Flexible Entry and additional selection criteria
If your ATAR is up to five points below the advertised ATAR cut-off for this course, you can improve your chances of admission by submitting supporting material directly to the Faculty. All non-year 12 applicants should make an additional submission. This can include a letter of interest, portfolio of creative work and references. For more information, please see: www.arch.usyd.edu.au/admissions

Mature-age applicants
If you are over 21 and have not completed the HSC or equivalent or more than one year of tertiary study, you can complete an approved preparation course and then apply through UAC. Contact the University Centre for Continuing Education for more information: 9351 2907 or view courses at: www.usyd.edu.au/cce

If you missed out
If your marks were not high enough to get into Design Computing, you may consider enrolling in another degree. After one full year of study, you are eligible to apply through UAC for a place as a non-year 12 applicant. You will need to perform very well to give yourself a chance. It is best to select a degree in which you think you will do well and perhaps to take subjects that might help prepare you for Design Computing.

International Students
On-shore international applicants
If you are an international student completing your HSC in Australia, apply through UAC and you will be considered for a place based on your ATAR score.

Off-shore international applicants
If you are an international student studying overseas, apply through the University’s International Office:
Tel: +61 2 9351 4079/4161
Fax: +61 2 9351 4013
Email: info@io.usyd.edu.au
Web: www.usyd.edu.au/fstudent/international
If your high school qualification is not recognised, you can enrol in a foundation course, please see: www.usyd.edu.au/fstudent/undergrad/apply/inm/foundation/

SCHOLARSHIPS
University-wide scholarships for HSC applicants

University of Sydney Scholarship Entry Award
Awarded on the basis of academic achievement and other achievements, $5000 for 1 year. Application required.

University of Sydney Scholarship with Merit
Awarded on the basis of academic achievement and other achievements, $5000 for 4 years. Application required.

Outstanding Achievement
HSC students with an ATAR of 99.95, $10,000 for 5 years. No application required.

Faculty scholarships for local & international students.
No application required.

University-wide scholarships and Faculty prizes for enrolled undergraduate students

University of Sydney Honours
Students enrolling in full year honours program. Awarded on the basis of merit. $5000. Application required.

Enrolled students
Dean’s Honours list, Architecture Prizes for top student in each year.
University of Sydney Academic Merit Prize. Awarded annually on recommendation by the Dean, this prize recognises the highest performing undergraduate students in each Faculty based on average marks. Value $2000.

Student Exchange
Exchange programs are also offered, so you can expand your horizons by studying abroad. See www.usyd.edu.au/fstudent/studyabroad for more information.
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"Beginning Interaction", Photo by Kristina Mak. From "Exposure" developed by Ali Malla, Georgie Pope & Kristina Mak (Information visualisation Studio, 2009)

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