



expo tees

showcasing next generation
digital expertise

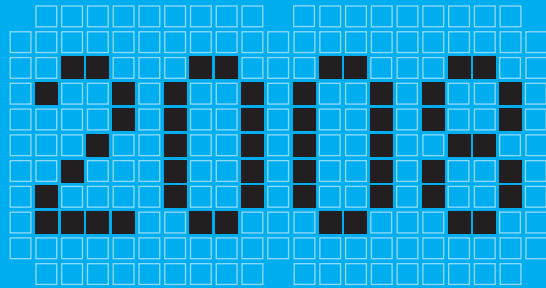


UNIVERSITY OF
TEESSIDE

SCHOOL OF COMPUTING



where art meets computer science



To find out more about our digital expertise and the range of computing degrees offered by the University of Teesside, contact the School of Computing:

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School of Computing

This is the third and largest showcase of next generation digital expertise emerging from the work of final-year student projects from the School of Computing.

The spectrum of work presented in expoTEES, where art meets computer science, is extremely wide ranging, from those projects which involve advanced computer technology to others that centre on story telling and entertainment. At the mid point of this spectrum the relationship between art and science becomes fuzzy. Our artists demonstrate an ability to harness technology and our computer scientists have developed an appreciation of aesthetics and visual design.

The projects take place over 20 weeks, culminating in a written report and development of a product. The product is normally, but not always, some form of computer based artefact and represents between 30 - 50% of the effort the students put into the project as a whole. It is acceptable for some students to develop a comprehensive detailed and complete games concept document as their product.

All students are required to undertake an in-depth exploration of a chosen subject area and demonstrate the ability to analyse, synthesise, and creatively apply what has already been studied. Their projects contribute to their portfolios of work for presentation at job interviews.

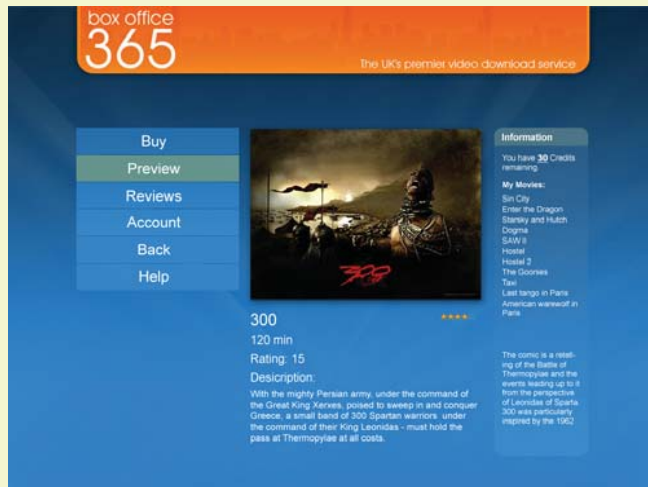
This content of this exhibition is representative of a cross section of our final year project work; and as such presents both very ambitious pieces of work and those who have taken a more cautious approach.



edutainment and web design

This section presents work that reflects the creative and interactive aspects of website and multimedia development. Edutainment seeks to instruct its audience by embedding lessons in some familiar form of entertainment: games, films, music, websites and interactive multimedia software.

DANIEL CAVE



I worked at Thap.co.uk on my placement year, and it was through consultation with the Managing Director of Thap that the idea for my project evolved.

BiBC (digital rights management and stream media specialists) were interested in getting their web application boxoffice365.com ported to set-top boxes. This enables distribution of electronic products through IPTV/VOD channels and Thap were interested in supporting that process, by allowing me to undertake the project.

The interesting and challenging aspect of this project was the constraints of using only cHTML or other small footprint language, that is navigable by a TV remote control. This presented unique challenges in terms of design and implementation; the cHTML/small footprint language is quite obscure and a lot of effort was required into researching and mastering both the mark-up language and the custom browser the set-top box will use.

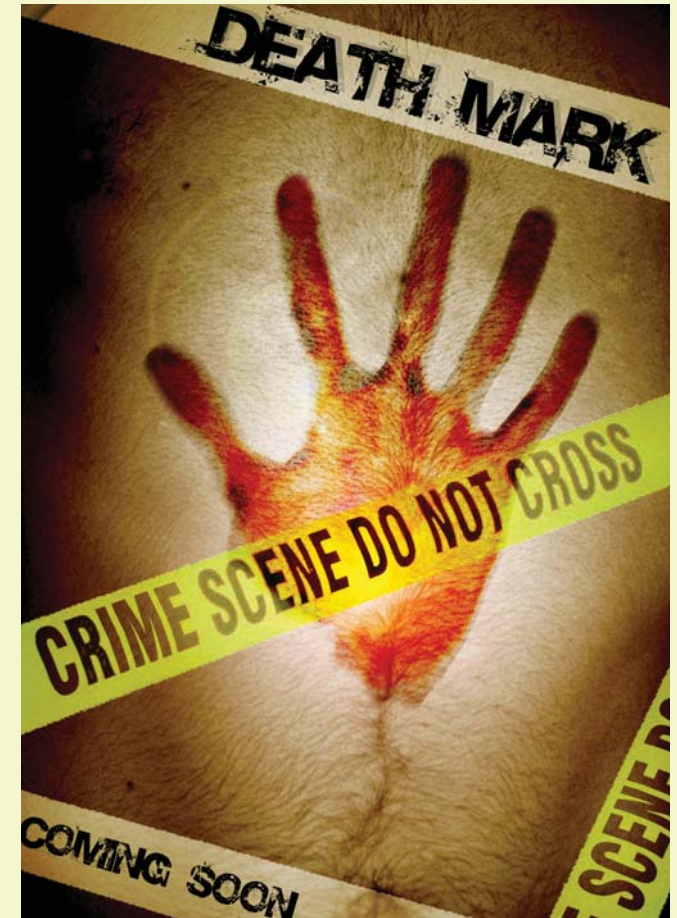
This project has given me the chance to explore a range of study from TV suitable design, to bespoke browsers and the IPTV Paradigm

ALEX HARRISON



I have designed and produced a Flash-based website based on a film I have created. The film, *Death Mark*, is based around a serial killer wreaking havoc in London. He always leaves a calling card which is a burnt in handprint on the victim's chest, hence the title.

The site is viewed from the eyes of the detective chasing the serial killer and it focuses on the production of the film; principally the film locations. The website has been given a dark, menacing feel to reflect the themes and tones of the film. It has provided an opportunity to showcase a range of photographic and creative multimedia skills.



SVEN-CHRISTIAN SLOTTKO



Would a more immersive setting enhance e-learning?

More and more universities are exploring virtual learning environments, and although Blackboard is the most common e-learning platform in the UK, leading universities have shown interest in the virtual 3D world Second Life.

New multimedia applications open various possibilities to create cost-effective, academic e-learning platforms, as well as online business training.

Coming from a business background with interests in photography and music, the idea of building a creative e-learning user interface which could be used as an online training for companies was greatly appealing. I have also been fascinated by the idea of altering the function of existing multimedia software and have therefore focused on a Java-based 360 degree application, usually used by estate agencies, to create an environmental atmosphere with human aspects.

I will evaluate the effects of an immersive setting on our learning behaviour to give evidence of the efficiency of immersive multimedia tools within a virtual learning environment.

DEBORAH MATTHEWS

During my degree I've worked as a placement student in a local secondary school, and noticed a lack of ICT being used in more traditional subject areas. Based on my experiences I have developed an e-learning Online Quiz Application to be used by pupils in secondary schools. Teachers will be able to create and manage quizzes as a teaching aid. A rich, user-friendly interface was generated which employs graphics and simple animation to make the application more entertaining and enjoyable for the pupils.

The application's dynamic content is managed using PHP and MySQL. The user interface has been developed using Adobe Flash to satisfy the visual needs of the system. Information visualisation has long been recognised as accelerating understanding and engaging the user and is therefore a well respected educational device.



DAVID LINCOLN



I have built an online karaoke system which allows the user to register, record a song, comment on recordings made by others and then rate them.

The system utilises both SQL and PHP to provide the dynamic content. The design of this on-line application was carried out in Adobe Photoshop. Adobe Flash was selected for generating the user interface as

it provides a lot of developmental freedom and met the demands of this highly interactive and visual system.





JONATHAN TORR



I have developed an educational piece of software that allows people to see how they can save energy, mainly electricity, around the home.

The E-House software is a virtual tour around a typical three-bedroom house. Each room offers a variety of interaction, for example the living room contains a TV which has been left turned on. The user can choose to turn it off or leave it on standby and be advised on the consequences of their choice from an energy point of view. This software is targeted at first-time buyers to give them advice and information about simple tasks around the house to save energy, and encourage a respect for the environment. E-House has been created using a mix of software, including 3Ds Max and Adobe Photoshop. The interaction for the house will come from incorporating the designs with Adobe Flash.



CRAIG DUNCAN

'In every kitchen, when nobody is home, out comes a little Yum Yum whose job it is to keep your kitchen clean and tidy. Often seen by children, but never by adults, Yum Yum loves to eat lots and lots of food. Join him on his adventure as he interacts with different foods that come to life in his kitchen. Learn why some foods are good for his tummy and why some are bad.'

My final-year project is an e-learning application to teach five to seven-year-old children the importance of healthy eating. Taking into account the latest government reports, learning theories and learning styles, the application aims to provide children with a greater understanding of nutrition and hence inform their food choices.

Yum Yum is curious, friendly and sometimes a bit naughty. He meets many new characters on his journey through the kitchen.

This project used Adobe Flash and the skills developed throughout my degree, including, multimedia authoring, sound production and digital drawing skills. Get ready, because Yum Yum is crazy about healthy eating.



SAMANTHA LOCKEY



My project is a mathematics revision application for school children at Key Stage 2. The application considers different areas of maths that the children are studying, including fractions and general problem solving. It has simple and consistent navigation so it is user-friendly, and there's a fun element to the learning to keep the children engaged. Serious Games is a

relatively new area of research which looks at the development of games for training and education and there is a lot of evidence to support the notion that interactive play enhances the learning experience.





MARK BAINS



I am exploring ways of creating an application that will aid the teaching of music. The application will incorporate two synchronised video recordings of a seminar; one recording of the whiteboard, and the other of the PowerPoint presentation.

At particular points in the video, the user will be able to write text-based annotations

regarding the video subject matter into the application. They will then be able to link these notes to the corresponding locations on the video files by highlighting certain areas of the playback. The user will also be able to disable various sections of the playback which they do not think are relevant. This leaves the user with two synchronised video files, showing only the interesting parts and with textual and graphical annotations to highlight key points. The user can then scrub the playback using a slider control.

The application is being written using the new Windows Presentation Foundation within the .NET 3.5 Framework. Subsequently, this will allow the application to feature a full DirectX interface.

The application may also feature the gesture capture from an interactive whiteboard.

ROY SPENSLEY



This project offers students aged 14-16 a view of World War 2 using authentic visual environments.

The design is web-based and features a main scene set in a partially destroyed London street where the user can move around the screen to find different clickable items. These items lead to other pages

where additional activities can be experienced - for example the user can drag and drop newspaper headlines into a 1940's newspaper relating to real events from the war. The design focuses on the war in Europe and concentrates on several areas including the Battle of Britain, D-Day and the Home Front. This highly visual web application allows students to explore this period by engaging them in interactive play.



computing and web development

Ranging from the development of a RISC processor simulator through to developing business-to-business web services these projects typically synthesise two key computing skills – database development and programming. The projects use a wide range of technologies including C#, PHP, BizTalk, SQL Server, MySQL, MS Access, Java, Ajax and Action Script.





KELLY LAYBOURNE



I maintain a small website for a local record label based in Stockton. The label wants to sell music online for a relatively small price, but all of the digital distribution agents charge a percentage for storing your track, and take a cut of each one that is

downloaded. The band would eventually get about 33% of the track's original selling price.

Subsequently, I have created a site giving the band total control of their material, providing an accurate record of their sales, and encouraging an alternative method of distribution to offering free copies on social networking sites.

This site has been developed using C#.Net, Visual Studio 2005 and SQL server.



IAN CULLEN

My project, Social Connect, involves the integration and streamlining of multiple social networking sites profile data. It uses application programming interfaces and Google Open social atom feeds to allow ease of management for Myspace, Facebook and YouTube accounts.

Social Connect will eliminate the need to log into multiple systems. It offers unique features such as support for accessibility, MSN messenger, theme customisation and route planning with an interactive map to friends' addresses.



MAISON MICKAEL



My project is a software simulation of a RISC (Reduced Instruction Set Computer) processor and development of a basic integrated development environment (IDE) for its assembly language.

RISC is a type of processor design. It favours a

simplified instruction set to simplify implementation and to increase instruction level parallelism. It was first introduced in the late 1970s by IBM.

The chosen model is a SPARC V8 (Scalable Processor Architecture), which was designed for power efficiency and high level languages (object orientated). Such simulation software is very interesting from a teaching and learning situation as it can show what is happening in the processor during the execution of the code. This also can be used for debugging purposes.

The user is able to write a program in the embedded editor or load a program already written and execute it. Also they have control of the execution speed (line after line or batch), and are able to see the content of the memory and registers at any time.

CHRIS MCGRATH



My project is to design and develop an extension to the current Ether Magic website; focussing on the recruitment section.

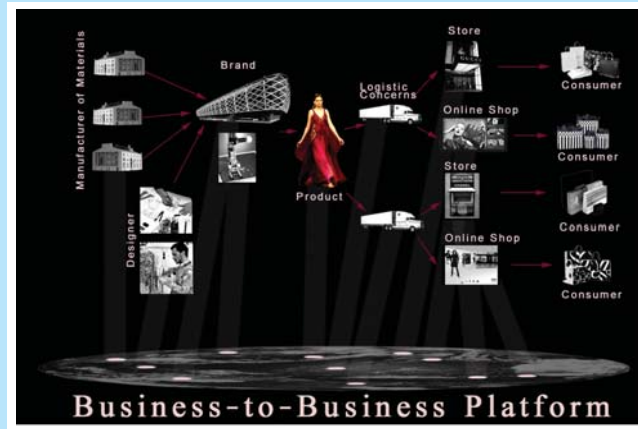
Staff will be provided with a comprehensive administration interface with a username and password to see who has registered on the site. They will also receive an immediate notification when someone applies for a vacancy and view the candidate's details.

Candidates will be given a username and password. Once logged in, they can upload their CV, search and apply for vacancies; and receive automated emails about relevant new vacancies.

ALINE SEEGLITZ

My project involves the development of a business-to-business platform for the international fashion industry. In particular the project facilitates sharing of data and business processes between fashion stores, new designers or brands, fabric manufacturers, logistic companies and trade fairs.

Businesses or job-seeking individuals can register and login to their own account, use email, self-promote and search for other businesses. Additional content includes business news, information about initiating a new business, discussion forums and blogs to create a more valuable site and promote community. The platform will operate like a modern business club, supporting both new and existing enterprises in this industry.



EMMA LOWERY

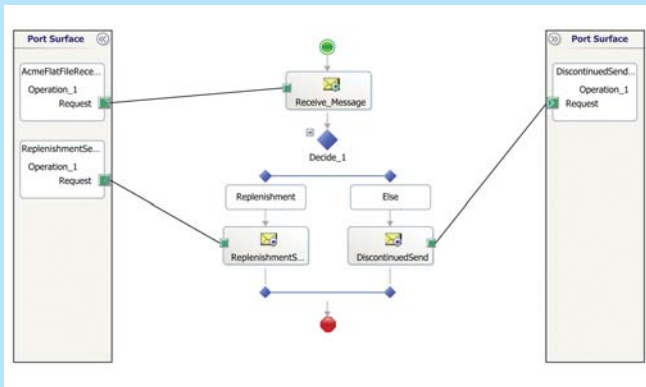


This project idea to develop a local charities' co-ordination and marketing platform arose from my industrial placement when organising charity events for the company. There are many opportunities for larger charity organisations to promote their events, but nothing to support an individual's charity events specifically for local people.

The site will have two principle functions; a user can upload details of a charity and also use the search facility to look for upcoming events in the area.



THIBAUT APPERT

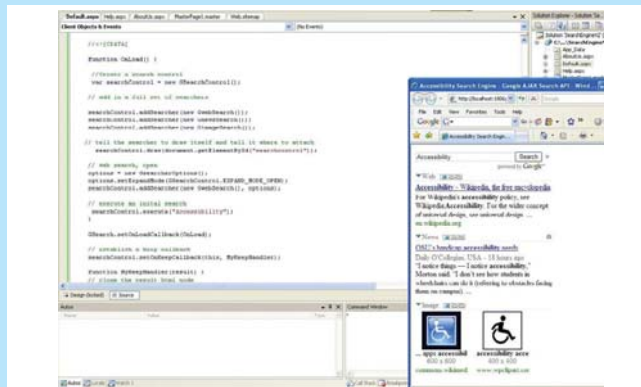


I have developed a simulation of a virtual reseller business using web services and a system called BizTalk Server 2006. The principle of this e-commerce solution is to sell products without managing any stock and to send them directly to the customers.

The hub of this solution is BizTalk Server 2006 (commonly called Integration Manager), which enables messages to be sent to the different suppliers' platforms. It processes them to obtain their real time stock. The project uses three computers, one is the virtual reseller system (BizTalk Server 2006) and the two other are the suppliers (web services and databases). They are deployed on a local network to enable proper communication between them to reproduce a real-life solution.



JADE BROOKES



I have built a prototype accessible search engine which can provide ratings on the accessibility of websites for the visually impaired. Since the implementation of the Discrimination & Disability Act 2000, it has now become a requirement to make a website accessible. The search engine will be built in Visual Studio 2005 using C#, XHTML and JavaScript. The application will communicate with a number of existing search engines and accessibility assessment API's and synthesise the results into a coherent on-line guidance for the visually impaired.

MARC CAISIP



My project is a portfolio site which was inspired by the sites of Dave Werner (<http://okaydave.com/>), Nick La (www.ndesign-studio.com/Flash/) and Andy Nick (www.nickad.com/).

The website incorporates the use of vector imagery, motion graphics, video, and popular back-end technologies to create a website that aims to amaze. I have worked with chroma keyed video, as well as XML and PHP with Adobe Flash, Adobe After Effects and Electric Rain's Swift 3D.



MARK ADAMSON



My project is an online cookbook that will allow users to view, upload and talk about recipes from all over Europe.

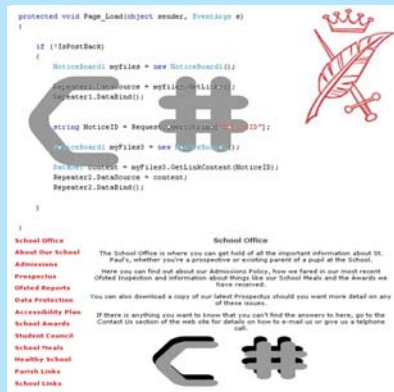
This site will harness the power of web services to satisfy two different functions within the site. Every country will have a recommended reading section associated with it. This section will consume the Amazon

web service to produce a list of books associated with that country. For example when looking at the British page the recommended reading section will produce a list of British cook books.

Web services will be utilised to display the weather in a particular city. For example if the user is looking at French recipes the website will show the current weather in Paris.

MICHAEL BEAVER

My project is the development of a content management system (CMS) for a primary school. Visual Studio 2005, C# and the .NET environment are utilised to develop the website's interface and functionality and Microsoft Access is the chosen platform for holding the data. The CMS will allow several users to add, delete and update content via the website with utmost simplicity. It includes a photo upload and management system. It is my intent to extend the project so that students can login to their own areas and undertake web personalisation.



computer graphics

At the heart of any computer game, computer animation and computer simulation are the systems that enable the visualisation of the imagination of the developers. Those who build such systems require an intimate understanding of the software, hardware and associated mathematics. These projects are highly technical in nature yet make visible a wide range of potential applications, from 3D reconstruction of a CT scan through to the modelling of a billiard table.





KEVIN WILSON

My project aims to model the physics of bird flight using an articulated skeleton connected with elastically deformable feathers.

Joint torques are applied to move the wings and the aerodynamic forces acting on the feathers will be calculated using first aerodynamics, then computational fluid dynamics.



The wing position is represented by parameters applied to the various degrees of freedom that the skeleton will allow. Of these parameters, control parameters are determined and mapped to analogue input, allowing intuitive control. An environment with

aspects such as a wind system, places to land and bodies of water has been created in order to test the bird.

This project and its techniques are inspired by and will be similar to the article 'Realistic modelling of bird flight animations' by J-C Wu and Z Popovic in ACM Press. However, rather than calculating the parameters required to make the bird follow a fixed path, I will be determining control parameters for intuitive input, so I will also be taking inspiration from several publications by Demetri Terzopoulos on controller abstraction.

Many techniques have been employed in the project including forward dynamics, computational fluid dynamics, aerodynamics, gravity, lift/drag model, Bernoulli's principle, fluid pressure/density, wing-beat parameterisation, non-linear angular springs, differential equations and quaternions.



PAUL DEMEULENAERE

Fluid simulation is used in meteorology, aerodynamics and hydrodynamics. It can be in real world (such as a wind tunnel) or in digital simulations. The Navier-Stokes set of equations represents the fundamentals behind fluid simulation. It is very difficult to resolve fluid simulation analytically. These days, fluid simulation can be approximated thanks to computers. Video games can also use fluid simulation on the GPU to simulate smoke or clouds.

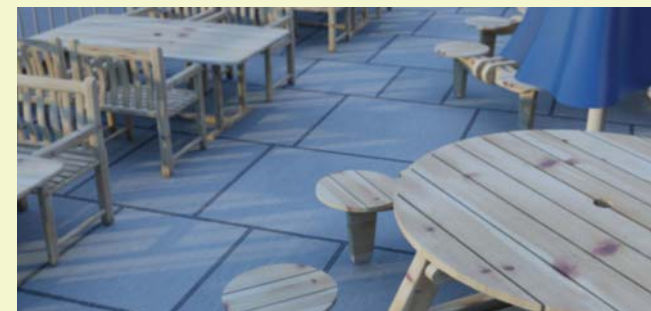
My aims were to develop a C++ tool to easily create dynamic fluid simulation in 2D with physical interaction of fluid with the environment, and to implement GPU computing of fluids.

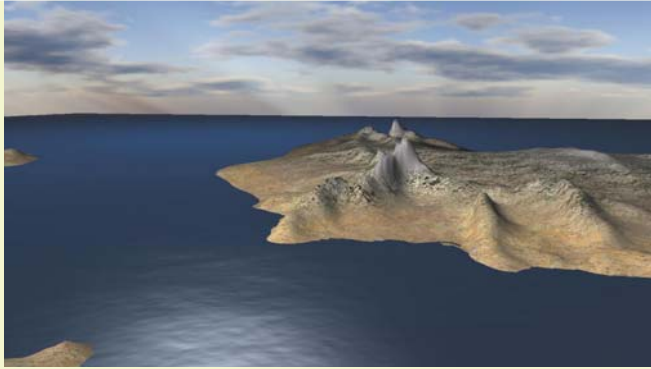


ROSS NEAL

My project is to develop guidance for new users to acquire a grasp in the use of lighting.

In particular the project aims to help beginners of Mental Ray, a complex but beautiful render application capable of producing photorealistic images through 3Ds Max. I have produced a short book, breaking down more complicated lighting techniques into smaller problems with easy to follow tutorials.





WAYNE TAYLOR



As the modern gamers' desire for increasingly larger virtual environments continues to expand, methods of procedurally generating realistic landscapes are heavily relied upon more than ever. AAA games such as 2K's *Oblivion* contains over 16 square miles of free, roamable environment and is still considered too small by some critics.

I developed a new method for generating terrain based on the simulation of tectonic activity. I also developed a package which produces height maps and textures, formed from various phenomena caused by the interaction of tectonic plates. The software includes features such as mountains formed from plate collisions and land mass forming from volcanic eruptions.

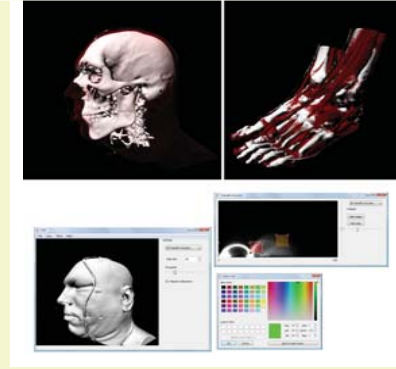
There are currently no published attempts to produce virtual environments in this manner. Therefore this is a very experimental project. It involved creating a number of prototypes aimed to test the limitations and success of a range of different algorithms as opposed to heavy research into current techniques.

NICO MOSS



The aim of the project is to develop software for tennis players to improve their skills in the field of serve returning or prepare themselves for upcoming games on different court surfaces. The user will face a virtual 3D tennis court environment on screen and will interact using a motion-tracked tennis racket and head position.

A physics engine simulates a virtual ball which is able to collide with different court surfaces such as clay or grass. Its flight path is controlled; for example, a topspin will make it drop faster. The main feature is the collision response model for the virtual and simulated ball colliding with the motion tracked racket. All will be recorded and saved to a file to be reviewed and analysed.



CLEMENT DAGNEAU



I have become especially interested in scientific visualisation, since my placement year at Schlumberger, where I developed several visualisation applications. I particularly like investigating new techniques in order to offer better ways to visualise and understand data.

My project developed software that allows the interactive visualisation of volume data acquired by Computerised Tomography or computational simulation. The software runs on a standard PC and take advantage of the latest developments of graphics hardware. For example, the user can freely manipulate the 3D reconstruction of a CT scan that would usually be visualised as a set of individual slices. The application also provides different shading techniques, which creates images resembling technical illustrations. These can then be saved at high resolution.

The project is designed to be cross-platform and uses QT for the interface and OpenGL/GLSL for the graphic engine.



AURELIEN BERCON

In many industries, city or terrain visualisation is needed. It can be used to simulate disasters, to define new buildings, locations or to create video games and animation.

During my work placement as a graphic designer at Ordnance Survey, I obtained a 3D terrain data and a very precise digital map of London. My project is a simulation using this data.

An API reads the data in order to create a 3D map. This is written into a COLLADA file. COLLADA is a format which can include all 3D data (object, light, material etc). Softimage XSI is used to create a flood simulation using the 3D map to show the possibilities of the geographic data and the COLLADA technology. For a real application, this can be used for emergency services to see what buildings are damaged by the flood, depending on the quantity of water.



JOE TIDMARSH

My project realistically renders and simulates grass in a manner that would be suitable for use in real-time applications.

This involves each virtual grass blade being dynamically lit, shadowed and animated. A major challenge was to find a suitable method to render potentially millions of grass blades at a suitable frame-rate. Specialising in graphical science, have personally been a great experience. I have developed skills in real-time graphics, offline rendering and collaborative games development.



REMI ECHALIÉR

In recent years graphics cards (thanks to programmable shaders) have demonstrated immense power by generating stunning pictures in real-time. Meanwhile, offline, ray tracing CPU-based renderers have been used for visual effects for a few decades. My project aims to discover how it is possible to combine these two kinds of computational units and make a hybrid renderer.

The first performance hit in ray tracing is detecting collision between rays and objects. The rasteriser's goal within a graphics card is to draw the first object to be seen. Just that simple operation needs to be performed millions of times per second in a typical game scene. Based on that observation I developed an application that is GPU (graphical processing unit) based and renders a ray traced picture with reflections and refractions. At the end the project, the final visual renderings will be compared to on-the-shelf products such as 3Ds Max or Maya.



ADAM STEPHENS



Every day when we wake up or at night when we switch on a light, we accept how it works for granted, because it's as easy as a flick of a switch.

Unfortunately, it is not so easy with CG lights. They must be carefully positioned and complex rigs need to be set in place. A lot of people are unaware of the intricate detail that must be used to paint light into the scene, from the scattered defused light that's coming from the sky, to the bounced light that comes off objects creating colour bleed.

There are plenty of methods that can be used to illuminate a CG scene. Some of these are complicated to set up, whilst others are fully automated to a degree. My project has investigated how these methods vary and aims to understand where direct illumination can be used as a substitute to an automated method to create a unique mood, saving render time and money with little to no noticeable difference.





games development

Games programming and science projects are associated with the more technical issues of games construction and platform development. Many of the projects are coupled with a console-specific games platform or extending the capability of an existing games framework.



ASBERY JAMES



For my project I am modelling and texturing an environment for a hypothetical, hard-boiled detective adventure game. It is set in an alternate timeline and incorporates elements from 1930s and 40s Art Deco with Victorian era architecture. I think it's important to try and maintain the believability of an environment even when something like it may not actually exist in reality. This adds to

a player's immersion and makes their experience more compelling.

I have been influenced by a year spent living in China and have a strong interest in this culture. It's my desire to work out there again in the future, perhaps helping to liaise between a UK developer and their outsourcing office. I wish to work as an environmental artist and am interested in the design and construction of urban environments and combining different cultural and design influences to create unique settings.

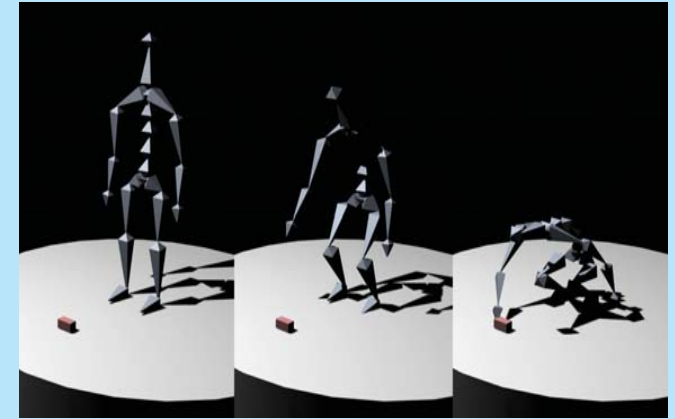


VICTOR CLOSS



I have specialised in concept design and illustration – specifically focusing on character art and design. For my character designs I had to study the figure in motion and experiment with different illustration styles. It is my ambition to work within the games industry, producing concept art, with a view to involvement in other areas such as animation and fashion to further strengthen

my sense of style and enrich the creative process.



ERWAN BANCAL



Character motion in video games is mainly brought to the player via animation created by artists. Such a method is great visually but can feel repetitive and may limit the games interactivity. To solve this problem, games very often use procedural movement generators; but most of these are inflexible because they do not take into account physiological limitations and often apply to

the human figure only.

In my project I am striving to deliver believable character motion for reaching and lifting tasks. Believability is achieved by applying physiological, mechanical and external constraints on the entire skeletal structure. By reflecting these constraints the resulting motion will add credibility to the character. The aim is to build a system to edit any creature skeleton and make it work in real time.

I am inspired by the work of Chris Hecker, (who made the procedural movement for the creatures in Spore).



THOMAS SIMONNET

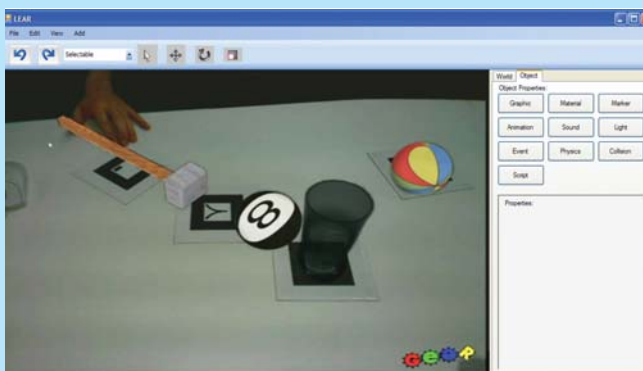


The objective of this project is to have an agent learn how to survive in an environment against the player. It is important to feel during game play that the virtual agents can react realistically to the player. The intelligence will be acquired from the player and actions will be learnt, such as how to take cover,

fire back and more important, stay alive. The agent will use an unsupervised learning system, a system capable of auto adaptation without having to be trained by the user.



ROMAN BLANCHAIS



This project will develop a Level Editor for an augmented reality (AR) environment. The system will propose innovative authoring tools, adapted to the conception of AR environments, mixing real physical and virtual objects.

The level editor will be built on top of an open-source AR Middleware called OSGART. The system will provide features like creating/saving environment, importing asset and scripting. The GUI would be developed in C#, and plugged in with C++ DLL.



JAMES CHARLICK

Set in the future the player in my project is a genetically enhanced human forged from the DNA of dead war heroes. Part of a special operations group called VELO (Valhalla Elite Operations) it is your mission to seek out and assassinate the leader of a political party currently safe housed on the coast of an undiscovered island.

These assets will be of a high standard and could be used in current generation games (Xbox 360, PS3, etc) in the form of an environment model and a number of character models and possibly vehicles. I have created create concept art and blue prints to be used to aid in the modelling phase. These assets will be showcased as a fly through showing off my 3D modelling and texturing skills and will be fully textured using AutoDesk 3Ds Max for the base modelling, environment modelling and unwrapping and ZBrush to texture my characters and to create high resolution models.





PAUL HAYNES

For my final-year project I combined level design with my skills in modelling to create a level based in the new Unreal 3 Engine, for the game *Unreal Tournament 3*.

I realised that most people who make custom maps for this game would go down the sci-fi route (as that's the theme of the game) so I chose a style for my level that was a little different – pirates. The map I'm making consists of a small pirate town, made up of many models ranging from the town buildings, stone ruins, and palm trees to a ship wreck down on the beach. As well as learning the new Unreal 3 engine in order to put all this together, I've learnt a new modelling program (Modo) and have been learning new texturing techniques, so that I can make the quality of the custom content in the level as high as possible.

The finished product will be released as a fully playable Deathmatch arena for the game on both PC and PS3.



AMIR SEKHAVATI



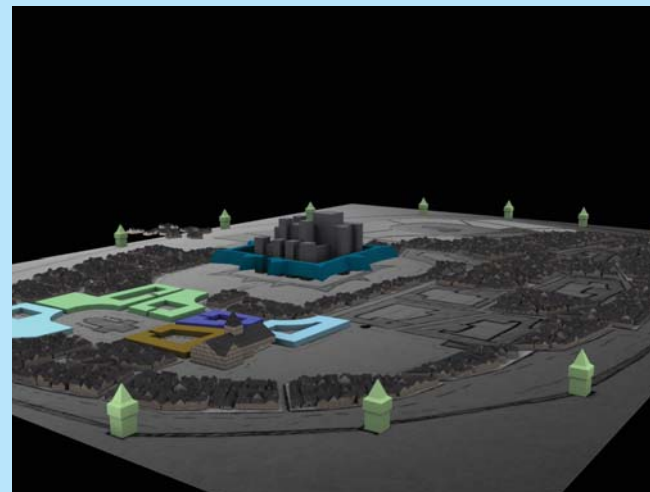
Cubix is a study into artificial intelligence. It is a two-player game played over the surface of a cube. The idea comes from an old pen and paper game known as Squares. Each player takes it in turns to select an edge of one of the smaller squares that make up the cube. When an edge is chosen that completes a square, the player is assigned a point.

The game continues until all remaining squares are completed, at which point the scores are totalled and a winner is announced. The main focus of my project is to create an opponent that adaptively learns to play the game at a higher skill level over time.

ALBERTO FOGLIA

In many games the player traverses an urban environment often full of wonderfully modelled architecture, but they all miss one central point: a sense of scale and density. Most games have cities with only a few dozen buildings, and only a few games have cities of any considerable scale. This is especially true of games which have an ancient or a fantasy setting. My project creates a full-scale, 3D, medieval city for use in the Unreal 3 game engine, which is fairly detailed but still vast in size.

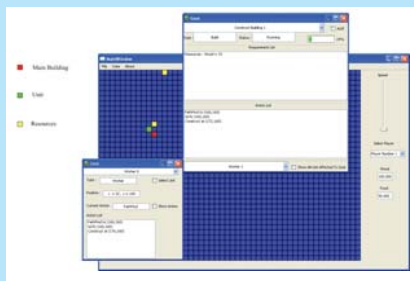
Aside from obvious applications in gaming, this could also be useful for archaeological recreation of ancient cities, as you get a good amount of detail and also have the ability to walk through and explore the city. The city itself is imaginary, and is a mix of architectural styles of various northern European nations from between the 1400s and 1700s.





BENOIT MARCHAND

I've decided to investigate a specific AI technique used to plan the actions an agent (element that can retrieve information from the environment around him and act on that environment) so that the agent can reach a certain objective. To test and demonstrate the effectiveness of this system I've implemented it assuming that the environment would be a real time strategy game (RTS-game) and that the agents would be the units of a player controlled by the AI system.



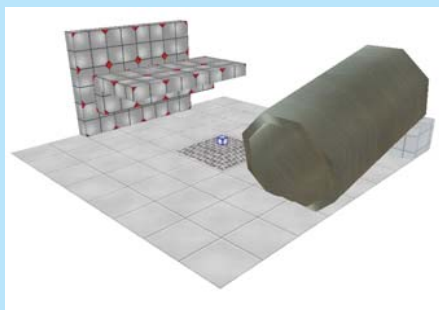
The system will represent the expansion/evolution of the AI player's base starting at a very basic state and going toward the achievement of a given objective. With

only a main building and a unique worker unit to start with, the system will plan the different sub-goals – and at a lower level the actions – that needs to be done to reach the final objective. In this RTS game type environment, a goal/objective can be like the gathering of resources as well as the research of a technology or the construction of a building.



VINCENT MARTIGNONI

My project is to create a 3D, real-time game using OpenGL API. 3D. I have chosen to produce a video game for my practical project with a unique central character. This character will be a droplet of mercury that will have to collect some objects to finish each level. This droplet could carry out some movements and have animated functions. However, this droplet will not be a droplet which respects the laws of physics.



SOREN LAMBAEK

Sound has an important role in achieving realism in games. It adds a dimension that no advanced graphics is capable of replacing.

My project attempts to implement a 3D sound engine for games and will therefore have to run real-time while graphics are being displayed.

The minimum requirement for this project is to play a sound file in a 3D space. If the sound is far away or behind the camera the



volume will be low. If the sound file is left of the camera the sound file will be panned to the left speaker and the same goes for the right hand. It will also be possible to imitate different effects like echoes.

The idea is to use an intersection algorithm to determine the distance

between the position of the sound and the surface of any given geometry.

I will use a 3D engine to visualise a 3D world scenario. Visit my website to read more and to see screenshots of the engine at www.pixie3d.com.

games concept and design

The birth of a computer game occurs within the imagination. The concept, the creation of a world, the characters that inhabit that world and subsequently interact through game play, the game play structure and level design are all represented in expoTEES. In particular these projects reflect work in games art, texture, story boarding, interface design and level design.





ZI PETERS



My project takes an idea from an initial concept design and expands it to a more thorough development design akin to the ones used at the end of the pre-production stage. It demonstrates various components that are required by a development team before the game can even go into full production. Not only does the idea need to satisfy the complicated demands of the fans, but also those of a publisher in order for the project to be financed.

The aim of my project is not only to create a solid game design, but one that will also appeal to a wider audience. Not many games appeal to players in different countries. This is particularly a problem with western developed games which rarely ever become a commercial success when released in Japan (the second largest market for computer games). This isn't necessarily related to the quality of the game or the marketing, but is more to do with the difference in gaming culture. The design document I have created is the product of a lot of research into game design theory and other closely related subjects, plus investigations into different computer game cultures.



STEPHEN QUINNEY

My project is a small scale model of *Half-Life 2*. The main purpose of the project is to use *Half-Life 2*'s powerful character animation and artificial intelligence tools to help tell a story. Normally these tools are used to make the non-player characters behave in a dynamic and believable way, like actors in a movie. I have moved the perspective into a third-person view and have used the animation tools to apply these ideas to the behaviour of the player character.



The model is set at the beginning of a story, with a Victorian England backdrop. I have created my own characters and props to give it an authentic feel. The player can move the character around his home, and see how he reacts to the world around him, how his posture and mood changes, and how he interacts with objects in the world. This way the player can gain an understanding of the story without the need to give up control of the game for cut-scenes and other expositions.



MATHEW COOTE



As a 2D artist, I have created artwork to help convey my thoughts and decisions upon the style of a game and its major components (ie characters, environments, ethos etc).

I have researched the games market to help me decide upon a particular demographic and style of game-play. I am developing a science-fiction-spoof adventure, that is more centred around humour than actual plot or storyline. Primarily the game is

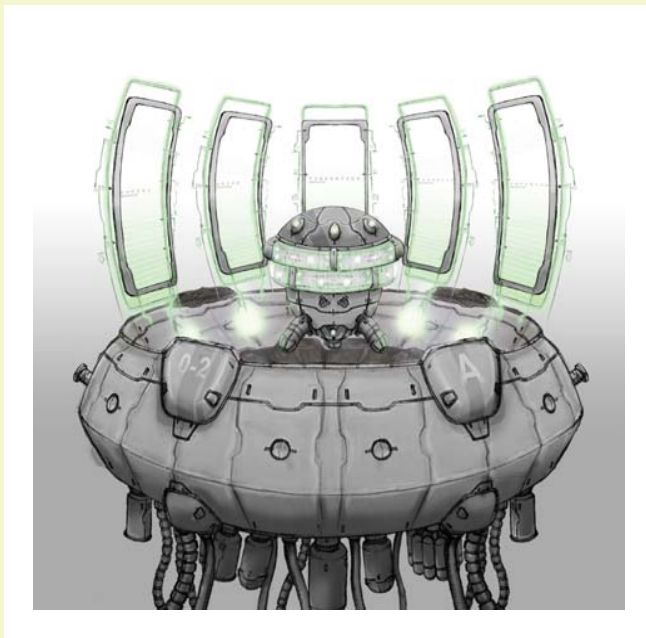
designed for the Nintendo Wii, and for the most part it will play like a traditional point and click adventure, but it will contain many others styles of game-play.



DANIEL WEST

As a games designer I visualise ideas, using different mediums rather than just the written word. I can communicate an idea more effectively, through images and sounds. Using an interface is a great way to explore my ideas; it can give the audience a feel for my concept, as I see it.

Factors of War is a game concept I have had for a long time. It is mainly a narrative based game and it has been a great opportunity to get it on to the drawing board. Using an interactive document with this game idea works well, where the story could be told with slideshows and dialogue.

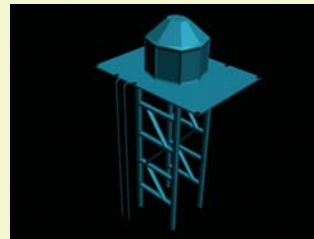


ERICH COOPER



level design document to accompany my research and model.

The aim of my final-year project was to design and complete a 3D level in 3Ds Max for an action adventure prison survival game. Before starting to design my 3D level I completed a level design document. This is supported by drawn up plans for the prison, buildings and pathways; and this provided me with a base to proceed to modelling my environment in 3D. I have also produced a

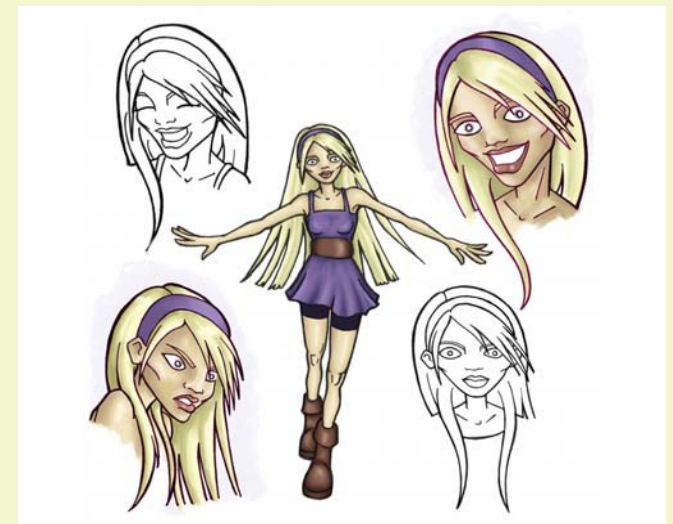


LAUREN ORRELLS

Based on a story I have written, a selection of characters will be designed with the focus being on the main characters (protagonist and antagonist) along with important secondary/supporting characters, minor characters and enemies. A profile and a selection of sketches and coloured concept artwork will be created for each.

The main heroine and a few other characters will then be modelled and textured in 3Ds Max, transferring them from 2D designs to 3D characters. The heroine will also be rigged and animated, featuring in-game walk and run cycles, and reactions to various situations to express personality.

The artwork will be hand-drawn and developed and coloured in Adobe Photoshop and Corel Painter.





STEVEN HOPE



I have created a games design bible, a level design document and a three dimensional model. This was to demonstrate that the ability to refine an idea into an innovative, original and commercially viable game based upon research of competitors, the target audience and similar themed media. This is presentable to a board of directors as an extensive pitch or document. The level design provides the core values of the game and illustrates the creativity, technical ability, drawing skill and attention to detail which is required. The three

dimensional environment proves that I can be flexible and work in alternative mediums. All products demonstrate the evolution of an idea through to implementation.

The game is a science fiction, action-adventure game and features puzzle solving, exploring, martial arts, weapons and a twisting narrative. The story revolves around a character that must travel between alternative dimensions in an attempt to locate a missing scientist. The travel between worlds dictates everything within the game and acts as a main gameplay mechanism. For instance, the narrative will branch at various points allowing the player the choice of world to visit, opening new events, information and puzzles. There will be puzzles requiring the character to travel to other dimensions in search of items or clues. The graphical style will be photo realistic, meaning the textures will be based on real-life and, where appropriate, be an interpretation of a potential world situation.



ADAM SANDERS

My project is concept art-based, focusing on character and environment concept pieces. Two dimensional hand-drawn concepts finalised into processed digital artwork pieces will feature predominately. These images will be based on the novel *The Day of the Triffids* but developed towards an alternative storyline with original characters and environments in a FPS style game story.

The materials I have used to create my artwork are a combination of traditional medium (pen and pencils, possibly watercolours) and digital medium (Photoshop, Painter software with A4 graphics tablet and scanner). For the 3D aspect of my project, I intend to use 3Ds Max combined with Mudbox and Z-Brush. The methods and software considered will aid in the production of creatively original and aesthetically pleasing pieces, all from the crude beginnings of preliminary sketches right through to the final, graceful solution.



MATHEW CLARKE

I have created a substantial game design document to accompany a peripheral design document. The game detailed in the first document will be specifically designed to cohere with the use of a peripheral explained in the second document.



The peripheral I have designed called the *PulseClock* is based on heart monitoring technology that tallies an accumulating total on the count of the wearer's pulse rate. This can be transferred on to the console, converting it into a currency that can be used in a game for progression and advancement. This means that young people who use the peripheral are encouraged to exercise through the day (at school) increasing their pulse rate and generating pulse points to use the collected points to advance in the game (at home).

The game has a child-friendly theme and a simple but strong, moral message of healthy living and fair play. It focuses around the fictional events of a sports tournament known as the Space Olympics. With a choice of five alien characters, players must progress through different sporting events in a zany and fun world while training and strengthening their athletes with the use of Pulse Points.



ROBIN HAIME



Toby is an eight-year-old boy who is afraid of the dark. Guide him around the levels, keeping him in the light and away from scary areas where he can see the spookies. Find the light switches and solve puzzles to assist him

in having a well-lit passage through the areas. If you can find his child-minder, Josh, he is always a welcome help.

While creating the game I researched different kinds of lighting techniques that would give the levels the authentic scary or friendly look as needed. I am looking forward to a later development stage in the project when I hope to get my eight-year-old nephew in the motion capture suite to improve Toby's movements, and hopefully get some cut scenes recorded.



ALEX JENKINS

My project is an original game design document, a unique experience involving a control scheme for innovative movement and combat. I have created an imaginative world filled with unique characters and environments to appeal to a wide audience. It has a gripping story and setting, a huge world to explore and fantastic creatures, weapons and armour. With complete customisation of your character, weapons and armour, every player can create their own persona in the game.

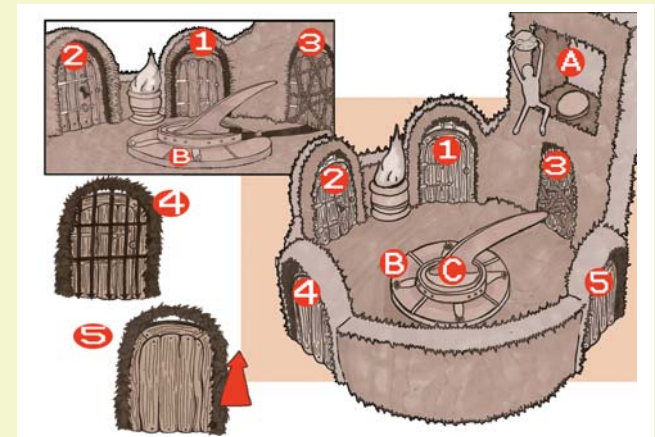
At the heart of the games is a fantasy world where humans are a dying breed - you are the product of an experiment to create the perfect human. It has left you with no memory but with improved strength, reflexes and senses. After an attack on the lab and the death of your co-worker, you must flee from the Daek-Thar, a feared group who hate humans and have been trying to shut down your experiments. You are accompanied by a woman who you can't remember but she seems to know you well. You then try to help save the human race.



EMMA DARVELL

My project is a level design for a role playing game crossed with a platform game to create something that will appeal to both genders. There is a choice between two characters at the start of the game which will in some places change the storyline and game play slightly.

The background story centres around the player's character and friend who run away from a personal issue and stumble across a cottage in the forest. They investigate and discover that it isn't empty. They panic and knock over some items which smash on the floor. The cottage is owned by a witch and she becomes very angry because they have ruined really important spell ingredients that were needed to close up portals. In her rage she turns the player's friend into a frog and demands that the items be replaced before she decides to turn him back. She then sends them to the courtyard between worlds that is full of wooden doors, each one leading off to a different world.



JUDITH BELLINGHAM



I am producing an animation pre-production bible based on an idea for a 2D short. The short concentrates on a young girl's dream sequence where she is haunted by a fear of a jack-in-a-box.

The bible is rich in design and originality, displaying aspects such as character sheets, environmental concepts, storyboards and plasticine models as well as written elements

including a premise and treatment for the story.

If the idea were to be produced as a 2D short- the bible would include everything possibly needed in terms of design and creativity, to put the short into production without all the time delays often created by a lack of research or finalised design work and storyboards.



CARLY SPRUDD



My project produced a series of 2D animation tests of characters based on a story for an animated TV series. The story is about a teenage girl who decides to make her own friends out of her old broken toys. After fixing them up to look like voodoo-styled monsters, she discovers that her toys have come to life.

I have produced a show reel of high quality animated walk cycles and other animated tests relevant to the story, such as character interaction and other activities.

To accompany the tests, I will conclude by producing a design bible, which will document each stage of the character design process, from rough sketches to the final model sheets. The bible will also include, a treatment, and some background designs. My aim is to use this project as part of my personal portfolio as I wish to specialise in 2D animation and character design.



animation



These projects focus on particular roles within a typical production team and reflect a number of themes such as drawing, 2D and 3D animation, character animation, sound, film theory, the production process and studio practice. They use a range of tools such as Softimage | XSI, Alias Maya, 3Ds Max, Toon Boom and USAnimation.



JAMES TAYLOR

I've developed a 3D animation primarily focused on character animation. This is an area I would love to work in and created the piece with my career in mind. Having always been an avid video games player I also created a narrative which could act as an introduction sequence for a game and enable me to demonstrate my animation skills.

The animation involves an unwitting subject being interviewed by a suspicious scientist character for what he assumes is no more than a drugs trial. This is cut with scenes of what is to come. As the true nature of the experiment is revealed his soul is sucked from his body and placed within the shell of a small rag doll. As the rag doll attempts to escape we cut back to the poor individual as he agrees to take part, unaware of his fate.

The animation involves both action scenes and dialogue and facial animation.



SUNDEEP TOOR

My project idea is to produce an animation inspired by C M Coolidge's paintings. The paintings were used to advertise cigars and depicted anthropomorphic dogs playing poker. I wanted to animate the dogs in an anthropomorphic way but they would still have behavioural dog traits. In this way, I hope to produce a more original approach to animating my characters. I've designed four dog characters with strong differences in their character and physical appearance; developed my 2D character animation skills and animated a quadruped walk. After a series of animation tests, the project puts the characters into a short contemporary narrative.



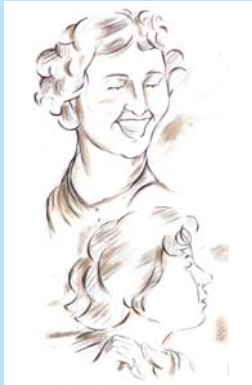
GARETH SLACK

My aim has been to create 2D character animation that focuses on nonverbal communication. In particular I have researched miming techniques to develop animation for my show reel and improve my overall character animation skills. It is my intent to interview a mime artist and following this research I will produce a series of animation tests with a 2D animation package.





ELOISE PAYNE



I'm particularly interested in the pre-production side of animation, more specifically storyboarding, concept art and character design.

My project is a 2D computer animation to a soundtrack based around the 1950s jazz scene in England. It tells the story of an ageing couple and the night they met, but it also portrays a lost style of dance and a genre of music that has since been forgotten.

There's huge emphasis on pre-

production, which includes storyboarding, design and concept art, as the main concentration is on the aesthetics of the animation.

My project is a design orientated piece, describing music using a visual media and is captivating to watch.



MATHEW BOYER

Aside from my passion for animation I am a great music lover and want to explore how classic cartoons used music to enhance their entertainment value. My project will be a 2D animated short with a strong musical element set in a 3D modelled kitchen. The narrative unfolds with a hungry toucan eyeing up a particularly tasty looking box of cereal and making it his mission to traverse the perilous kitchen to reach it. The cereal, however, has better things to do than end up as breakfast.



CHRISTOPHER MARSH

My 2D colour animation is a chase scene, and the design is reminiscent of early Warner Brothers and Fleischer style cartoons. The main emphasis of the visual presentation is concise, engaging and fluid character animation. It opens with a policeman helping a little old lady cross the street, only to be nearly hit by a van (containing two bank robbers) that comes careering past. The policeman abandons the little old lady in pursuit of the glory that might come with apprehending bank robbers. He gradually catches up to the villains and manages to board the roof of their vehicle, leading to a rooftop scuffle and an eventual foray into the countryside.

The mood of the piece is frantic yet comedic, juxtaposed with the overarching narrative of the piece which echoes that of the Aesop's Fable *The Dog and the Bone*.





MATHEW GRAVES

For my final-year project I took the opportunity to create a short film that incorporates 2D and 3D computer animation and the use of traditional media. The idea behind the project is to make a short animated film based around a piece of music. The music is based on a story about a falcon chasing its prey. My animation takes place in a 3D computer animated marsh with 2D computer animated birds. I have hand made all of the textures using traditional painting and drawing materials and have drawn the birds with a charcoal brush using 2D animation software. Line quality and shape are also used expressively to suggest the emotion and relationship of the birds.



KYLE BROOKE

Musta Joulu is short film, with a twist. The story is about a little boy waking up one Christmas morning. The film aims to raise awareness about environmental issues through a compelling story. I stylised the animation by getting the film to render out to closely match my own drawing style. When I finish University I intend to work as a modeller, with the hope of becoming a digital sculptor.



MARTIN ROBINSON

My project is an investigation of aerodynamics in games. I have chosen to design my own car, influenced by the Toyota Celica, using 3Ds Max software, Adobe Photoshop and various 3Ds Max plug-ins. The car will be high detail, 60 to 80,000 polygons and the design sent to various car manufactures such as Ferrari, Lamborghini, Toyota and Rolls Royce to see if the aerodynamics could be improved to tweak or re-model my design and improve the car's handling or speed .



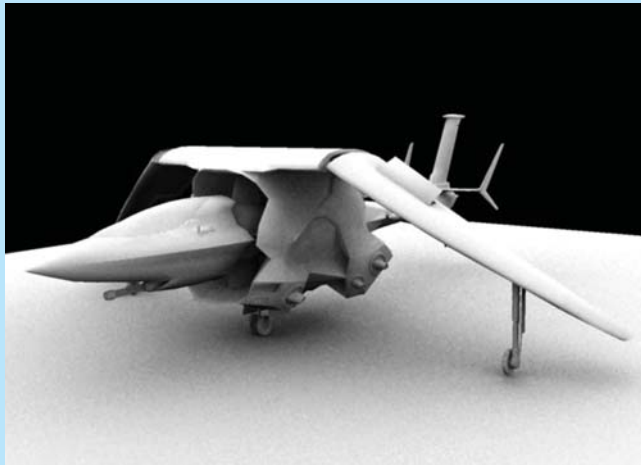
JONATHAN BOARDMAN

My project is a fun and amusing 3D animated short which features the lovable character of Clive. Clive spends most of his days miserable and staring into his pint glass in a run down old bar. His whole world is completely turned upside down when a beautiful woman walks in. Ignoring the fact she is entirely out of his league, Clive is head over heels in love and makes hilariously ludicrous attempts to win over the heart of this dazzling dame. The entire story can be told without words – sometimes actions speak louder. Without the help of a script the story must be told by the characters' facial expressions and gestures alone, which is interesting and challenging.



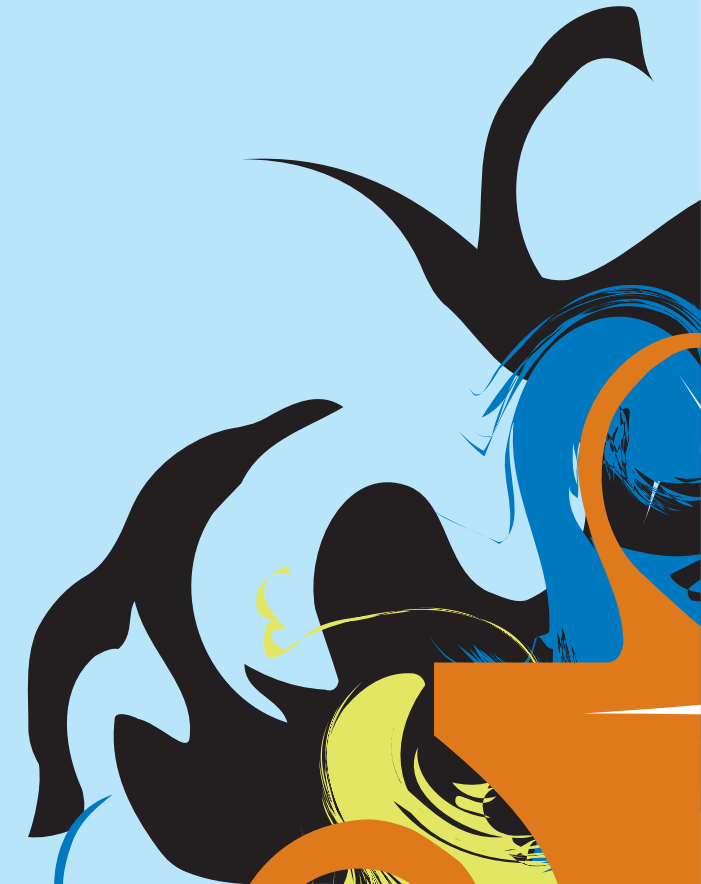
GEORGE CHATZIANTONIOU

My project focused mainly on the modelling, texturing and lighting aspects in order to create a realistic looking animated aircraft, landing in the centre of Middlesbrough.



AJOY DAYANANDAN

I love drawing and painting and used these skills throughout my final year project. The project is a one-minute animation combining of both 2D and 3D elements. The story is about the relationship of two field mice. The main characters are hand-drawn and the background and some foreground elements are in 3D.



LEE CASHMORE



My project is a 3D animated short following a waiter in a Parisian café, who has to overcome his rival without getting fired in the process. The main focus of the piece is the character animation itself. Without dialogue the emotions of the character will have to be displayed through strong poses and timing and through subtle facial animation. There will also be some emphasis on the

environment in which the characters act, which is in and around a fully modelled French café and plaza on a hot summer's day. The lighting and texturing will reflect this, giving a warm, light hearted feel to the whole piece.



NIGEL EMMANUEL



My project is a full motion video sequence that will introduce characters who feature in an interactive video game. The project is called *Renaissance Resonance* and is set in the future, just after the technology boom, in the year 2050. The novelty for technology has now worn off and the old ways (medieval and nomadic period) have once again surfaced. The environmental mood will be a

Gothic one, with a mixture of organic and fantasy. The story is based around a woman named Nadya Shofranka and the struggles of mankind against the power-hungry spirits that have oppressed them. Nadya is a skilled warrior in a nomadic-organisation that rebels against the spirits' law enforcements.

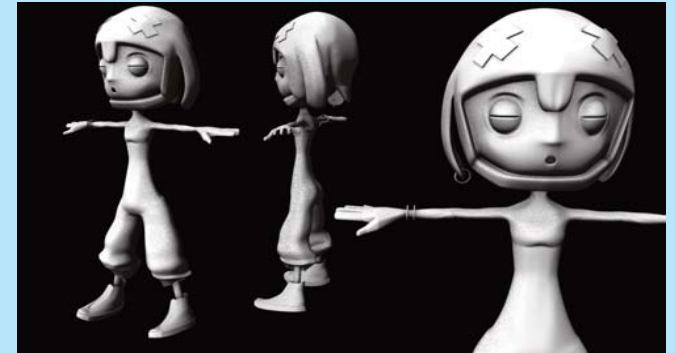


The aims of this project will be to utilise both 3D and 2D media, showing that both areas are essential.

MICHAEL WETHERALL



My project is a finished 3D animation short, set as if it were a children's show with two characters – a mischievous girl and a little sheep, with a narrative voice over.





RUBEN COLPAERT

I decided to create an imaginary world from my childhood. I have been fascinated by fantasy worlds and their inhabitants, and dragons are my favourite. I used to imagine being able to transform into a dragon myself. So I wondered, how this could be done in 3D. I investigated at how the bones would transform, where the wings would emerge and how the scales would grow from under the skin.



ANTHONY STAFF



My project is a 3D animated TV commercial to re-inform parents and 12-16-year-olds about road safety and the dangers on British roads. I have considered how images are used in advertising and previous commercials. My commercial ends with a reminder of the road safety website www.thinkroadsafety.com. For the project I produced storyboards, animatics, a minimum

of three character designs and 3D models, as well as relevant sound effects.



BEN HOLDEN



This project is a short interactive story where, as the player, you're free to guide the direction of the plot by making decisions in multiple-choice dialogue. Framed in a high fantasy setting, you will find yourself trapped in a city under martial law from which you must escape after being falsely accused of a most horrendous crime.

By the end of the story you'll feel like you've taken part in shaping the narrative and its outcomes, the personality of your character, and the relationships with the people you meet along the way.



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