

ExpoTees 2012

Showcasing the next generation of digital expertise

School of Computing

Inspiring success



Welcome

to ExpoTees 2012



I am delighted to welcome you to ExpoTees 2012, our seventh annual showcase of students' work from the School of Computing. This year we have taken the opportunity to host ExpoTees from our new Darlington campus, a fabulous venue providing first class conference, events and business facilities, conveniently located close to both Durham Tees Valley Airport and Darlington train station.

Each year ExpoTees exhibits a diverse and wide range of projects from our final year students from a variety of subject disciplines including computer science, computer games and graphics, web and media, concept art, visual effects and animations. ExpoTees is an illustration of the best that students from the School of Computing have to offer and I am sure that you will agree that this brochure illustrates some evidence of the outstanding world-leading work that has been produced, which is an exemplar to universities worldwide.

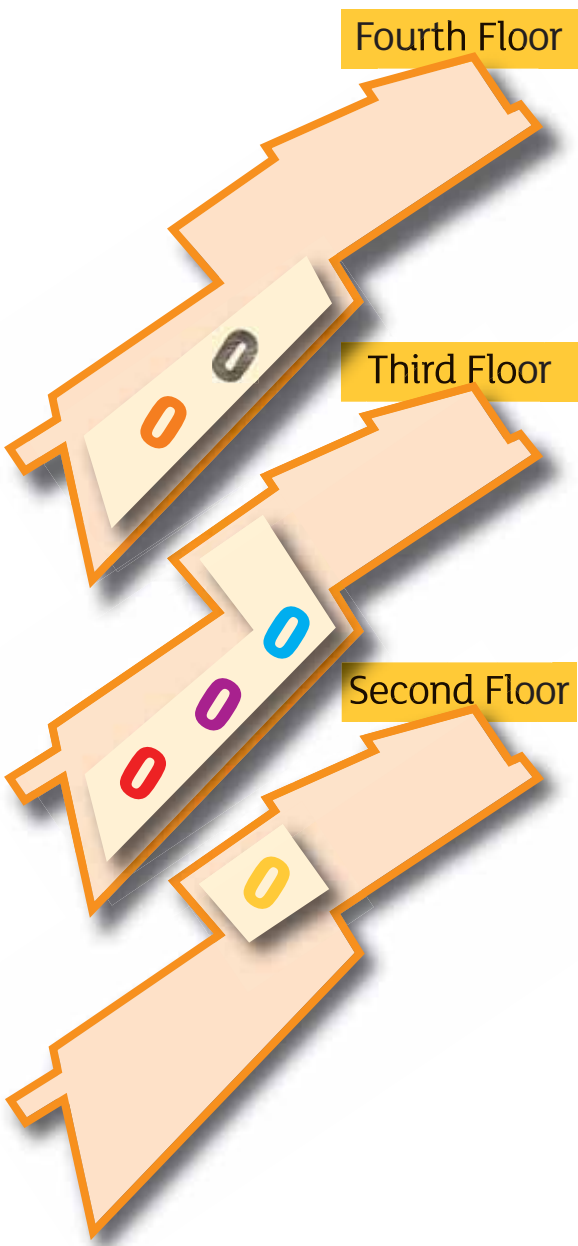
It is a great credit to our students and to the staff who have taught, enthused and supported them during their studies, that our graduates are welcomed into employment with many of the world's leading organisations.

I hope that you enjoy your time at our exhibition and use it as an opportunity to meet our students, and find out more about their wonderful achievements.

Simon Stobart

Dean

Where to find our students



The key

-  Animation & Visual Effects
-  Computer Science & Networking
-  Games Concept & Design
-  Web & Digital Media
-  Games & Graphics Programming
-  ExpoTees 2012 Awards

What is

ExpoTees 2012

ExpoTees is an exhibition of outstanding computing innovation, technology and design – and an opportunity to recruit bright, new talent to your organisation.

This event provides a unique opportunity to view a wide range of innovative research and development projects and to meet the students behind the work.

On display is a selection of some of the finest examples of work representing the full spectrum of subjects taught at the School of Computing.

Our students undertake an in-depth exploration of a chosen subject area and demonstrate the ability to research, analyse, synthesise and creatively apply what they have studied. The project is often in an area they have gained an interest in either via a work placement or through their studies. Some students undertake projects which have external clients and require project managing to industry standard.

Find out more about our digital expertise and the range of programmes offered by the School of Computing – call **01642 342639**, email scm-enquiries@tees.ac.uk or visit www.tees.ac.uk.

Welcome

to Darlington campus

We are delighted to be holding ExpoTees 2012 at our Darlington campus. Officially opened this April, Teesside University Darlington is committed to developing, inspiring and empowering individuals to drive forward their careers, supporting businesses to enhance their competitiveness, and delivering real benefits to the region's economy and beyond.

We offer business services to employers, and those thinking of setting up a new business. We help recruit talent, train and develop workforces, offer access to

specialist research expertise and host group meetings, training days, exhibitions and networking events. For those wanting to further their career we offer a diverse portfolio of part-time professional development courses. We are also committed to being a vibrant part of cultural and community activities in Darlington. We hope you like our new venue and enjoy ExpoTees 2012.

For further information on our business services visit tees.ac.uk/spark and for course and campus information visit tees.ac.uk/darlington.

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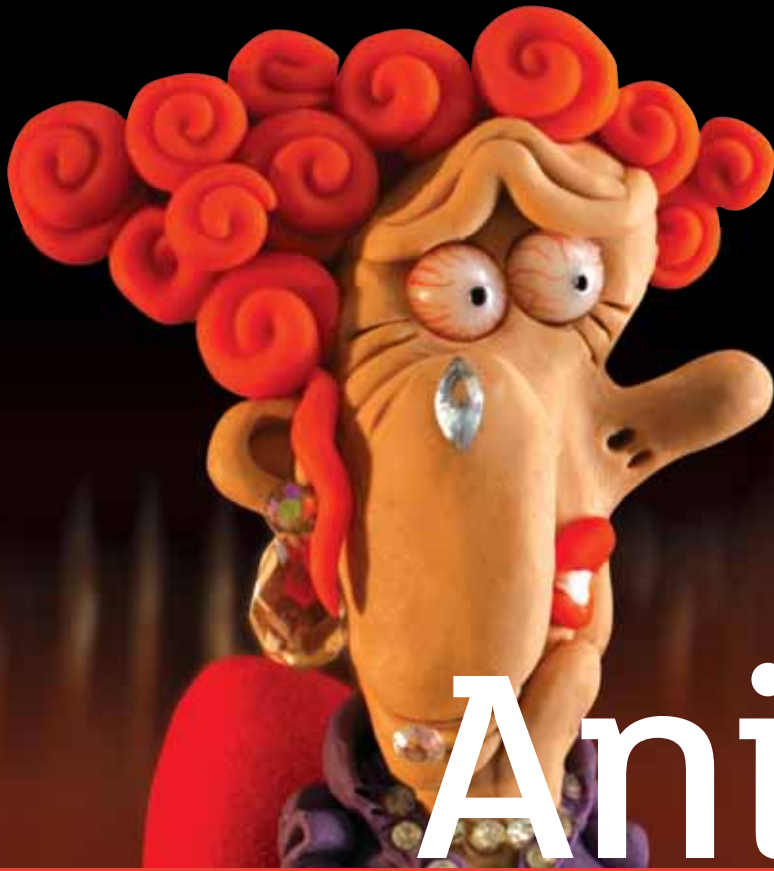
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Animex

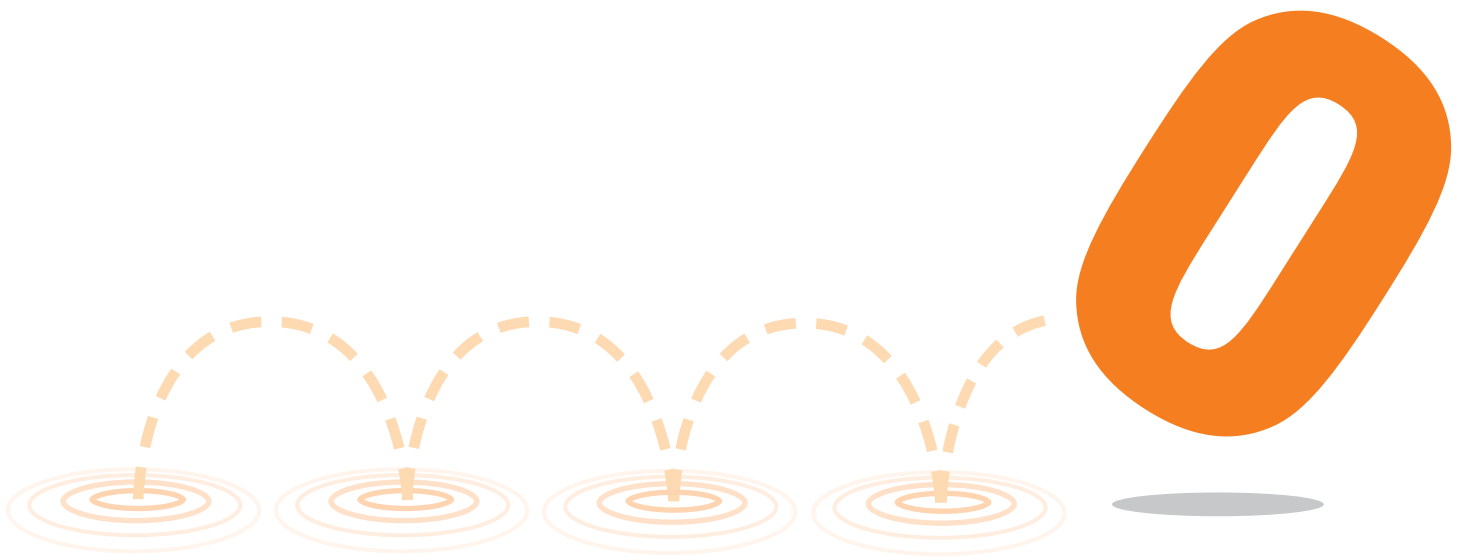
18-22 February 2013

The UK's biggest and best festival of animation and computer games

The Animex International Festival of Animation and Computer Games takes place every year at Teesside University. It is the largest festival dedicated to animation and computer games in the UK. Speakers and representatives from the global animation and games community gather for a week every year to educate, inspire and entertain an audience made up of professionals, students and enthusiasts.

Find out more:
www.animex.net





Animation & Visual Effects

These projects illustrate the level of expertise that students on the School's animation and visual effects courses possess. They allow the students to focus on a range of skills that enable them to move effectively into an industry setting and be productive from day one. Graduates from these courses have gone on to achieve success in major animation and visual effects studios in the UK and around the world including Framestore, Double Negative, Moving Picture Company, Cinesite, Pixar, DreamWorks and Industrial Light + Magic. Some have forged successful careers in games development and industries such as medical, oil and gas, and architecture. Others have gone on to become successful entrepreneurs running their own studios. Our teaching in this area is backed by Skillset, which has accredited our BA (Hons) Computer Animation course since the scheme was launched in 2005.

BA (Hons) Digital Character Animation



Hayley Jane Davis

The Catalogue Shop

For my project I created a concept art bible and digital sketchbook for a quirky point and click adventure game. The book is primarily artwork, filled with character art and exploration, environment ideas and level artwork. The book's focus is on the visual style of the game rather than mechanics, and introduces the reader to the story and a range of exciting characters from the game's world

BA (Hons) Computer Character Animation



Zi Huan See

Nyan!

Project Nyan! is a 3D game cinematic cut scene showing the opening video before game play. Nyan is a cat girl who went on a journey to become an elite food hunter while searching for her father. This time she encounters a giant blowfish monster on a foggy lake. The project covers original concept design up to post-production. The software I used was Autodesk Maya, Adobe After Effects 3, Audacity.



Michael Lindsay

Character animation showreel

I have created a showreel to prepare for when I leave university. It is divided into three sections to demonstrate a wide variety of skills. The three sections are acting, body mechanics and pantomime. The showreel was created using Autodesk Maya for the animation and Adobe After Effects for editing and post-production



Sebastian Castilho

Jane & James (animation short)

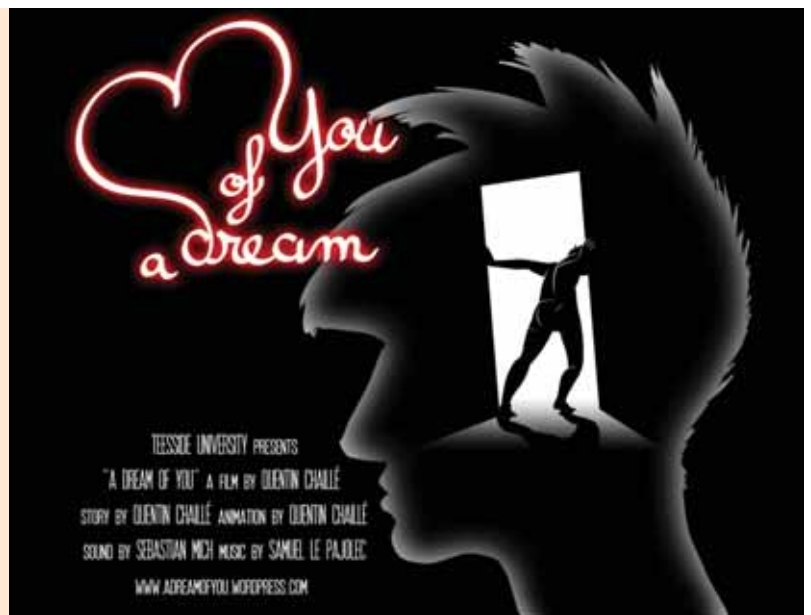
One day in a run-down New York apartment, a bright young girl brings home a mysterious box. Failing to gain her twin brother's attention at first, Jane opens the lid to reveal an intense golden light. James begins a chase for the box. But when he finally gets it, what's inside will literally take his breath away. The short animation takes design influences from 1950s cartoons and art, and combines them with a mix of classic and current animation styles. Autodesk Maya has been used to model and animate, Adobe Photoshop for artwork and texturing, and After Effects for compositing.



Quentin Bruno Gregory Chaille

A Dream of You

A Dream of You is a hand-drawn animated short film about the pursuit of love. Anyone who has ever fallen in love has experienced the confusing sensation of contradictory feelings. When the loved one matches your expectations, the best sensations occur. When he or she does not, it can be very painful. This loss of control makes you feel like your heart does not belong to you anymore. My project illustrates this metaphor, focusing on character animation. The film has been created digitally using, the mainly bitmap-based digital animation software, TVP Animation and Adobe Photoshop. These programs allowed me to give the animation an organic look which tends to be missed in recent 2D animations.



Aswathi Mohan Chammini

With Love from Heaven to Hell

I have created a short animation, based on an angel boy falling in love with a devil girl from hell. The main aim of this project was to create a character animation and concept art which was believable and gave prominence to facial expressions and performance with regards to the story. The software used was Adobe Photoshop for pre-production, Autodesk Maya and Adobe After Effects for production and post-production, and Audacity for sound editing.





Matthew Robert Davies

DŴr (water)

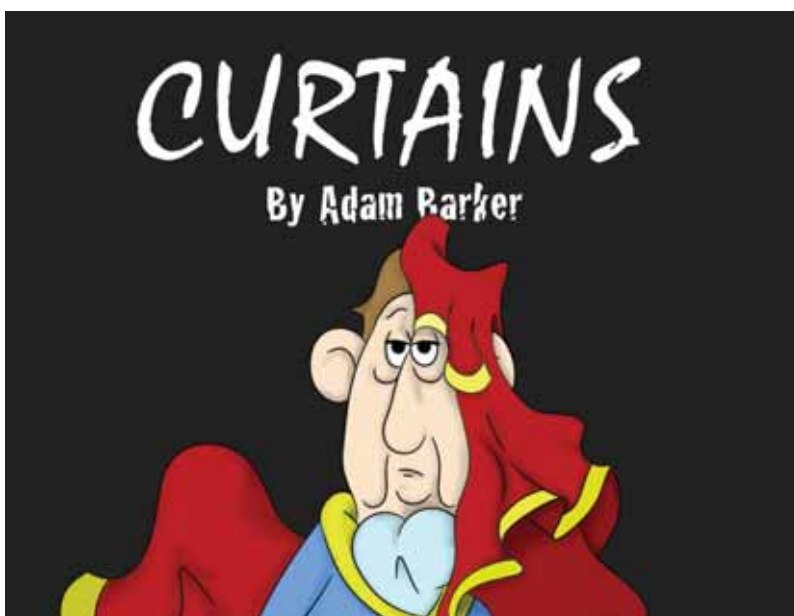
I have created a traditionally animated short film. The story derives from Celtic mythology and focuses on a water sprite awakened by a firefly in order to heal a wilting flower. Being from Wales, and inspired by my natural surroundings, I set the picture amongst a backdrop of rural countryside and Celtic ruins. I used music to accent the movements of the characters and to create a sense of fluidity. The piece is called The Swan by Camille Saint-Saëns. The music represents tranquillity and has a balletic feel to it, making it the perfect accompaniment to my animation. I drew every frame traditionally; pencil on paper then scanned the images into the computer. Using Adobe Photoshop I added colour and effects. I used Adobe After Effects to composite the sequence and to plan out the 3D camera movements. Using a flat plane grid, I simulated a camera moving along a surface in 3D space. I then printed each frame of the camera move and used them as a background for my animation. This let me move my 2D character convincingly within a 3D world.



Kaai Wern Hwang

Journey

I created a short animation about the journey of a tree finding his way to survive. The story begins with him still being a sapling. As the story develops the character begins to grow. I used a combination of 2D and 3D animation for the film. The animation does not contain any dialogue and is animated based on the music flow. Adobe Illustrator, Adobe Photoshop, Autodesk Maya and Adobe After Effects were used during development. The post-production artworks are designed in Photoshop and Illustrator. For the animation, only the main characters are animated in 3D using Autodesk Maya. For the side characters and the background I animated and edited in Adobe After Effects.



Adam Barker

Curtains

Curtains is a 2D animated short film. I created it as though it was the first scene of a movie or television pilot. The piece stars Sir Wilfred. He was once an accomplished and renowned thespian actor, performing at the grandest venues, commonly to very important people. Alas, the years have passed and the best parts are being snatched up by new blood, leaving Sir Wilfred hurtling towards rock bottom. With no more fame and no more fortune, and only his latest gig to keep him going, could this be curtains for Sir Wilfred? The rough character animation was created by hand while clean-up was achieved using Toon Boom Studio. All environments were created using Autodesk Sketchbook Designer.

BSc (Hons) Animation and Visual Effects Programming



Sunjay Dayalji

Birds of a feather

For my final year project I created a tool to help animators simulate a bird's wing over a unique path. Using Autodesk Maya and a combination of MEL and Python scripting, I made a tool that would simulate how a bird's wing would react to certain aspects of flight over a given trajectory such as inclining, declining and banking. After receiving advice regarding my project I realised that animators would not want fully simulated animation but would prefer more control. Consequently, I added a slider that allows the animator to tweak, or even blend between their tweak and the simulation, to get the desired effect.



BA (Hons) Computer Animation



Collette Tarbuck

The Octopus and the Anemone

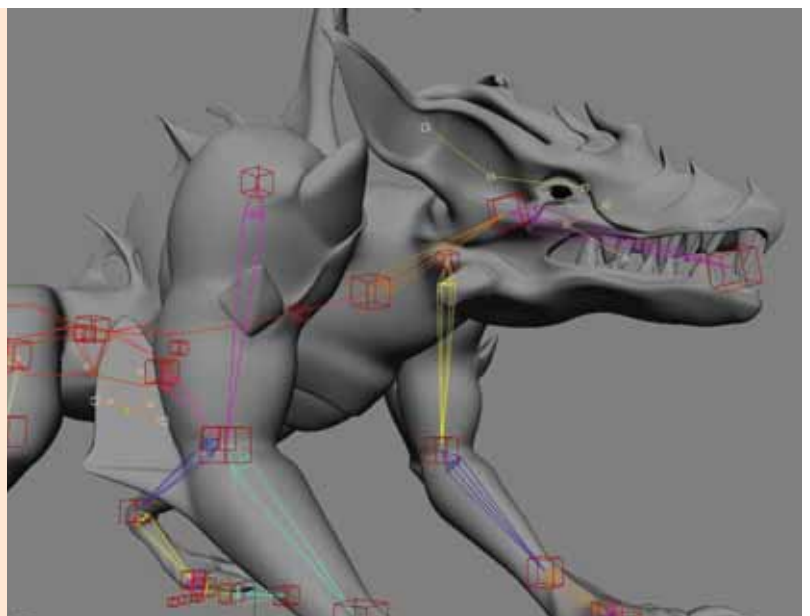
The Octopus and the Anemone is a short 2D animation focused on the bitter-sweet theme of unrequited love. While swimming through the ocean, a lonely octopus stumbles upon a beautiful anemone in a rock pool. It is love at first sight, causing the octopus to make several attempts at wooing her. However, the anemone does not reciprocate his feelings, and remains neutral throughout. Despite this, the octopus is still infatuated with her, stopping at nothing in order to win her affection. The animation was based on creating an emotional response in the viewer, inspiring me to make a piece designed to evoke both happiness and sadness. It was predominantly created using Toon Boom Studio and Adobe Photoshop, and is accompanied by some pre-production work.



Martin Brown

3D character modelling portfolio

I designed and created two CG characters with the intent of demonstrating the skills I have developed using a range of software packages. The models were created and rigged using Softimage and 3D coat and Mudbox for sculpting purposes. The textures were created using Adobe Photoshop and GIMP 2.0, with help from some reference materials. The characters have been animated to show their fully working rigs and the range of motions the rigs allow, without any abnormal polygon deformations.





Rob Skene The Precipice Dreadquill

Set in the rusting, seedy underbelly of the once-great mega city, Port Precipice. Amidst the smog and strife exists a terrified man, fleeing for his life, from a being that hunts him from the shadows and roof tops. This short 2D animation features a chase sequence through the crumbling hive of industry and conflict that is Port Precipice, a city built on a city built on a city, hanging precariously over a vast chasm. It features hand-painted backgrounds and bold, unique characters, drawn to emulate an animated graphic novel – sweeping, detailed vistas blended with bursts of action and a rising sense of tension throughout as our characters wind their way through claustrophobic back alleys. Port Precipice is a fully-realised character of its own, what was once a living, breathing, prosperous space port is now a twisted, decaying corpse, propped up by the parasites that infest it, refusing to let it rest and return to the black desert sands. I hope this is a springboard for further animated webisodes to be produced over the summer telling the stories of the final days of Port Precipice.



David Tom Watson Dynamic truck explosion simulation

This project is an exploration into the world of photorealistic VFX explosions. It shows the power of simulation techniques, used ever more frequently in current blockbuster feature films. Dynamic particle simulations show how complex explosions can be recreated in the CG world and how dynamic force based rigid body simulations can be used to realistically break open and shatter the mesh. This project captivated the little boy within me, who really loved to smash things up, and now I can recreate that world without having to break anything (other than my PC a few times).



Terry Thompson Downloaded – a creative and technical exploration of special effects

I have created an animation with a stylised first person point of view. The protagonist is on the run through a mysterious lab with an elusive task at hand. I used motion capture data and implemented it into my animation. I took it from capture to cleaning, stitching and finally applying it to my model that was sculpted using Mudbox. I rendered out a scene from the animation and applied a number of fluid and particle effects. I explored different ways of trying to gain the effects I wanted, researching into the industry solutions and applying them to my animation. I used a selection of plug-ins alongside Autodesk 3ds Max, including, FumeFX, Krakatoa, Particle Flow Tools, Box #2 Pro, AfterBurn, RayFire, PhysX and others. For compositing I used Softimage and Eyeon Fusion.



Justin James Lincoln

Float

Float is a short 3D animation about a young girl stranded on a floating island in the sky waiting for something to arrive. When the balloon drifts towards the island can she catch it? My animation also includes some dynamics and simulations. The dynamics and simulations were a bit tricky to work with due to its trial and error approach; however the overall effect that it adds to my animation make up for that. To create my short film I used Autodesk Maya for the 3D animation and simulations, Adobe Photoshop to create textures, Adobe After Effects to composite my shots and colour grading and Adobe Premier Pro to stitch and cut my shots together.



Joshua Timothy Marriage

Darkroom

For my final year project, I have developed an idea for a short 2D animation, going from an early concept and story, through to a short animated introduction sequence. I have created the production materials necessary in order to complete this animation after university, using Adobe Photoshop and Toon Boom Studio. The animation is a horror story revolving around a photographer with a dark secret, set in Victorian-era London. The visual style incorporates many elements that appear in German Expressionism, as well as early 20th century horror films.



Ryan Harrison

Motion capture and character animation in games and film

I have created a series of looping cycles that blend together using motion capture and hand-animation techniques. My characters are to be used as in-game characters but with the high quality performance of cinema. After many directors have failed to use motion capture effectively, I have researched what is required to direct a strong motion capture performance. I have explored why it is necessary for motion capture animators to have a strong knowledge of character animation. I have also looked at the advantages and disadvantages of motion capture technology and character animation when using the techniques in a film or game. The motion capture animations were captured in the motion capture studio then cleaned in Cortex Motion Analysis. They were then edited in Autodesk Motion Builder and completed in Autodesk Maya. The hand animated pieces were created in Autodesk Maya.





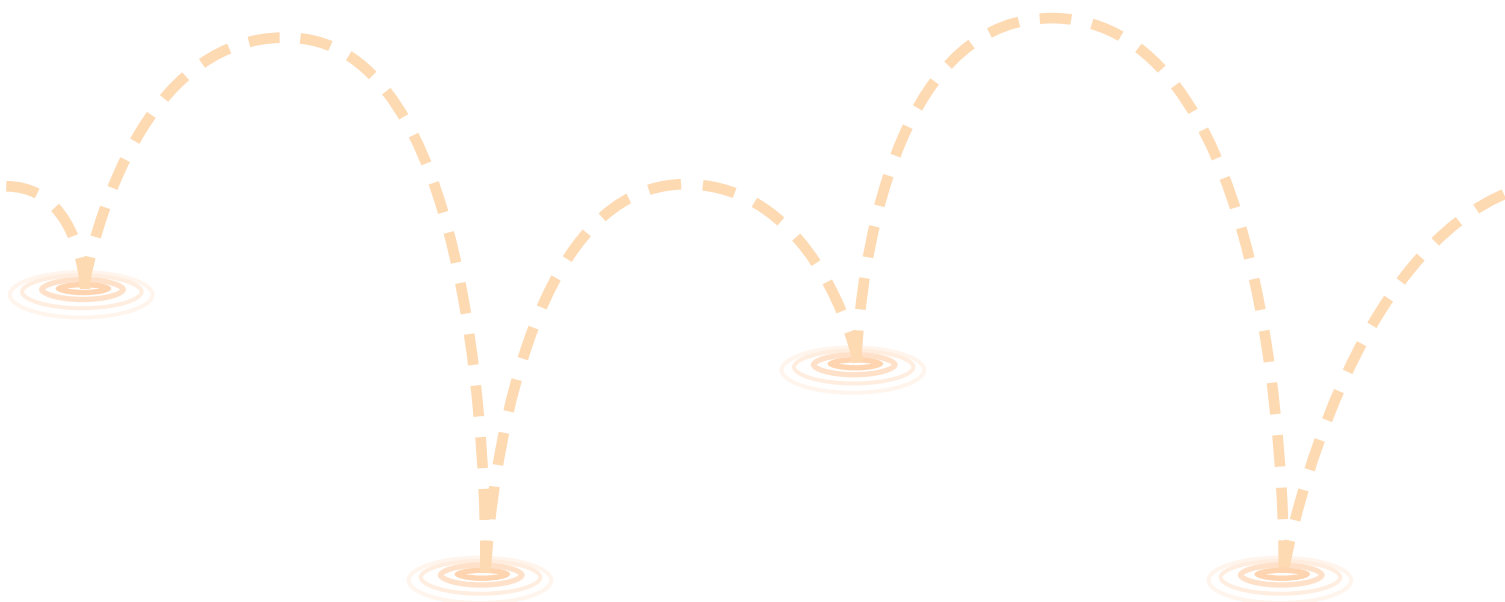
Emma Sawyer
Origami Garden

I have created a 3D animated short inspired by the Gobelins animations for the Annecy Animation Festival, and the artwork of Studio Ghibli. My aim was to focus on the design and the animation. The story is about a young girl called Bea, chasing a paper aeroplane that leads her into a world that is more colourful and interesting than her own, where origami comes to life. I designed the artwork for the film using Adobe Photoshop, and the textures were made to look hand painted. Autodesk Maya was used to construct the film and animate Bea and the Plane. Finally, I hand painted over the rendered 3D environments, then composited the animation in Adobe After Effects.



Rebecca Jane Pownall
Puppy Love

I have created and developed an idea for my own intellectual property (IP) based on a stubborn old cat and a feisty young puppy. The development of the IP explores the different platforms where content can be cultivated in today's modern multimedia environment. Taking the simple idea of cat versus dog, I was able to investigate the different ways that IP can be used, whether for a TV series or an iPad game. My findings resulted in a pitch document which could be presented to potential investors for project funding. I used Microsoft Office, Adobe Photoshop, Adobe After Effects, Autodesk Maya and ZBrush to create various aspects of my project for the final pitch document.





Matthew Neville Wood

Character animation

For my final year project I have animated a series of shots focusing on creating high quality character animation. The animations are unrelated so I was able to animate a wide variety of both characters and situations. I used pre-rigged characters from iAnimate.net, and did only the minimum amount of modelling to give the characters props and environments when necessary. I animated my shots in Autodesk Maya, and did the modelling in Softimage.



Alexander Mark Price

Thomas Houseman

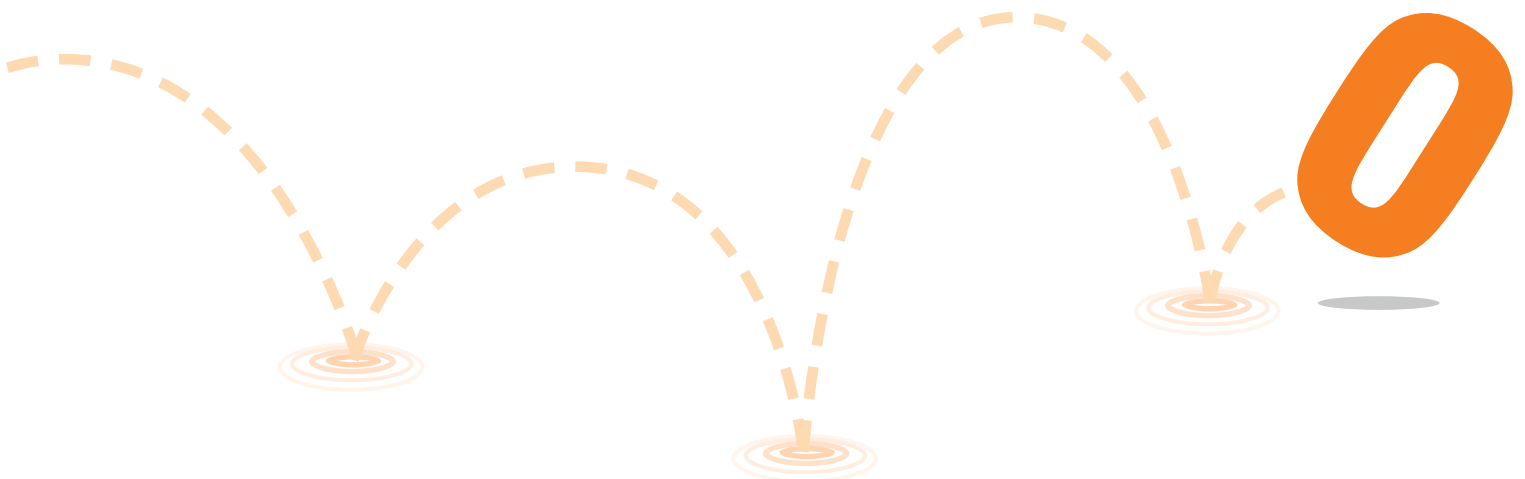
Phillip Charles Sweeting

James Burr

Odd Sok

This animated slapstick comedy features the misfortunes of a kleptomaniac goblin driven towards ascertaining one perfect sock, to whatever crippling consequence.

The animation was created to showcase the collective skills of four students in the fields of environment creation, character modelling and asset design, by setting the scene in picturesque Venice, and answering the mysteries of just where that missing sock gets to! We made good use of our diverse range of skills, covering the entire production pipeline, using Autodesk Maya for the 3D work, rendering in mental ray, Adobe Photoshop for pre-production and texture work, and Adobe After Effects and Adobe Premiere Elements for the final compositing and editing.



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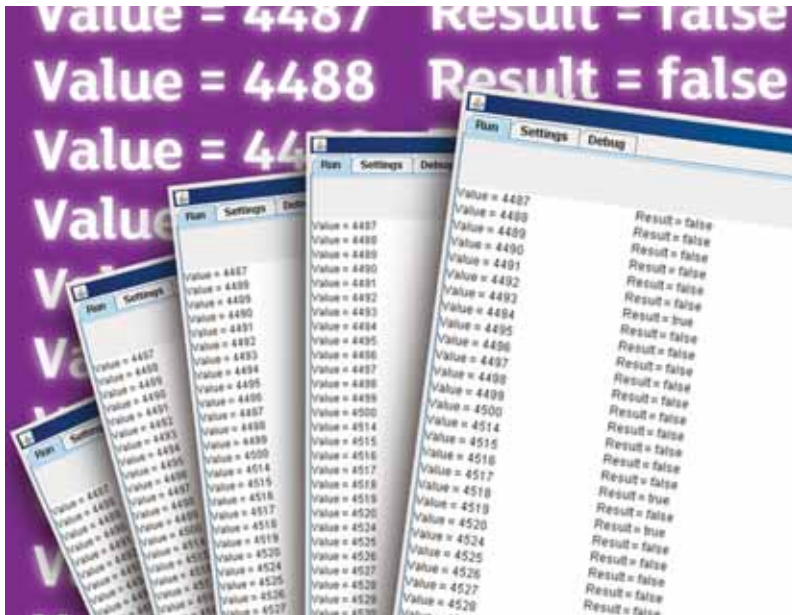
These diverse research and design projects encompass a range of topics from the highly abstract and theoretical branches of computer science to the practical applications of the theory in systems design, software development and ICT. Our courses are constantly updated to ensure that we are ahead of the game in providing students with the skills to develop systems and solutions using the very latest technologies. This can be seen from the selection of projects on show which share a common theme – innovation and experimentation.



**Robert Thomas
Williams Davison**

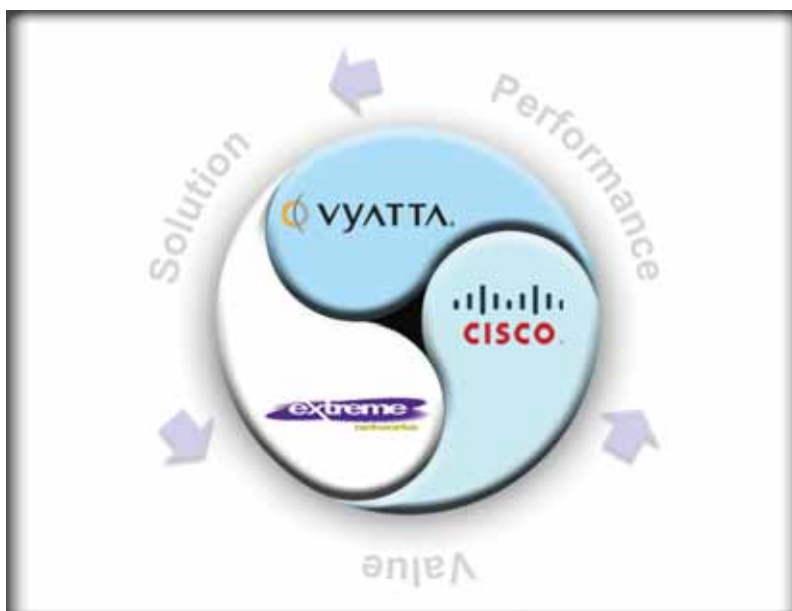
ExpoTees mobile application

I have developed an Android mobile application for ExpoTees. The application enhances the exhibition experience and promotes professional networking before, during and after the event. Features include viewing exhibitor listings, QR code scanning to quickly access detailed information about exhibitors, an interactive floor plan, information about amenities and professional networking using LinkedIn and Facebook. This challenging project has shown me what it truly means to elicit clients' requirements and to explore a range of new subjects such as software methodologies, user interface design patterns, QR Codes, RESTFUL web services and acceptance testing. The application was programmed in Java using the Eclipse Integrated Development Environment and makes use of the Android Software Development Kit and third-party libraries.



Ross Conroy
jDist

For my project I created a basic distributed computing platform. The platform is designed so that developers can easily write an application that will run on the platform. It uses a client server model with the server storing the source data and results, clients process the source data. It works by the server dividing a large set of data values up amongst a number of clients, giving each one a chunk of the data to process. The client application then loops through the data and returns the results to the server which then stores them. Data is passed between the server and the client using XML. Data is also passed between the client and the application using the platform. Using XML, it is passed through Standard Input and Standard Output. The platform is written in Java and applications that run on the platform are *.jar files



Adam Jalowiec
**Vyatta –
an open source routing solution**

I wanted to prove that Vyatta (a virtual routing solution) can be a cost alternative to traditional routing solutions for small and medium size enterprises. To do this I implemented the network with logical and physical designs and developed a set of performance tests to evaluate Vyatta. The network was created using multiple vendors' platforms where Vyatta was compared with routing leaders Cisco and Extreme. Before implementation the simulation of the network was built and tested in VMware with connection to GNS3 network simulator. Analyses were made using a number of tools including Wireshark, SolarWinds bandwidth monitor, TGen traffic generator and QClnt throughput tester. The progression has been based on recognised design methods through detailed and well documented test plans

BSc (Hons) Computing



Paul Christopher Watson

Spinal injuries data comparison website (SIDCW)

I have created a web based data comparison application for use within spinal injuries research. The project was developed as part of an on-going pilot study between three NHS spinal injuries units. The aim of the software is to provide a national data repository that can be used as a research tool by medical professionals to improve the standard of spinal injuries care in the United Kingdom. System functionality includes a multi-functional data upload application alongside a graph creation utility that allows for the dynamic production of visual comparative media. The software was built using Microsoft Visual Studio using ASP.Net and Visual Basic (VB.Net).



BSc (Hons) Computer Science



Jonathan Siddle

Sabisu mobile, business intelligence. On the go.

For my final year project I have created an iOS application to deliver mobile enterprise operational intelligence capability. The application is a small-format optimised user interface for the enterprise platform Sabisu (www.sabisu.co) which is used in the petrochemicals and manufacturing sectors to deliver a real-time, holistic view of business operations, but as yet has only large-format interfaces. The application provides access to core features of Sabisu for the target iPhone and iPad devices. Having assessed the existing user interface as unsuitable for such devices it was completely redesigned following mobile platform development best practices. The completed application interacts with the production Sabisu system to display data and information in a format tailored to take advantage of iOS features and hand-held, touch operated devices. The software was written using Objective-C so as to deliver the responsiveness and seamless experience of a native application even though the data is served from the live, operational cloud solution.



James Allanson

5Brush – an HTML5 graphics editor

My project consists of a cloud-based graphics editing web application that uses only open, web-native, technologies. There are currently no web-based graphics applications with complexity beyond the most basic image manipulations that do not require proprietary third party plug-ins. By offering more advanced functionality on a native web platform, the application is able to bring graphics editing capabilities to a much broader range of devices. Touch support brings graphics manipulation, a task typically confined to the desktop, onto mobile devices such as tablets. The application was created using Google Web Toolkit, a technology which allows Java code to be compiled to web-native JavaScript, enabling a more elaborate architecture. The application uses new HTML5 functionality, relying heavily on the Canvas element in order to manipulate image data.





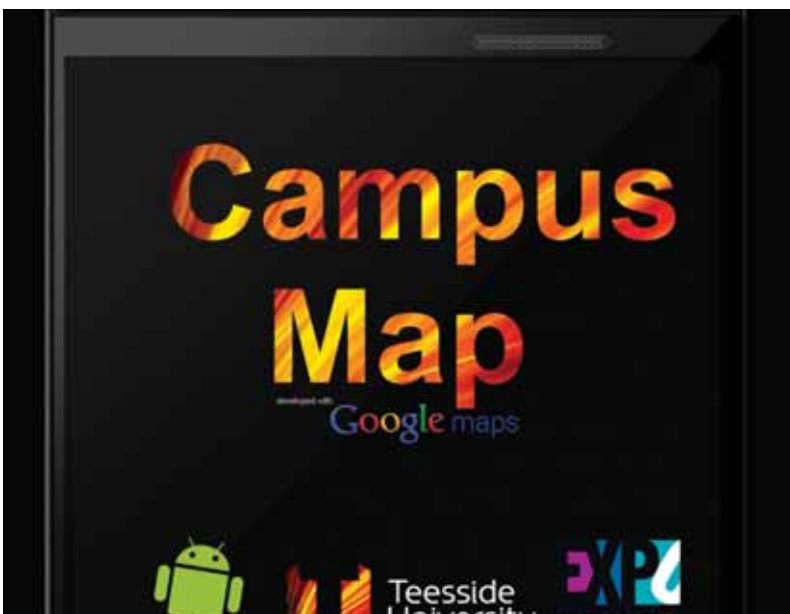
Peter Antony Coulton
SigInt

SigInt is a platform independent multi-agent system IDE that allows developers to build, test and maintain multi-agent systems. Multi-agent systems is a field of study in Artificial Intelligence, and an approach to developing software that attempts to solve problems by creating groups of interacting autonomous components called agents. The agents act like individuals in a social group, communicating with surrounding agents and making decisions about how to react and respond. An agent may decide to cooperate, ignore requests completely or might even lie or cheat, depending on the individual agent's goals and previous interactions. Multi-agent systems have seen a lot of interest and success in areas as diverse as autonomous vehicle control, swarm intelligence, crowd simulations and online trading. SigInt was built as a multi-agent system using the Boris framework, developed at Teesside University.



James Michael Lucas
Food to Cook

The concept for my project was to build an Android application, which students will use to find new recipes for items they already have in their home. The project was mainly focused on the connection between a SQL database and the Android application, with a large section on user interaction. I used an array of different software and techniques with the database being produced in SQL and the Management Studio, along with the application being produced in Eclipse and written in the Java. Except for the database side of this project the whole system was self-taught which has allowed me to showcase how I can adapt and learn new skills.



Robin Attig
TU campus map

I have designed, programmed and published a campus map for mobile devices using the Android OS. The Teesside University Campus Map can be found on the Android Market and is free to download. The purpose of this piece of software is to help freshers find the rooms they are looking for. It addresses accessibility and usability problems that can occur when using mobile devices. To make the software as intuitive as possible user data is saved and hardware information is read. The frameworks used are AndEngine, Google Maps and the Android 3.0 API.



Shaun Andrew Hogg Community base

I created a software program called community base which allows third-sector youth and community groups to record their social impact. The software is a web based interface allowing the user (manager) to create sessions which staff can then populate with what happened in that session. From personal experience, and after talking to people in the field, a major issue with data entry is that you have to be sitting at a computer to do it; or write it on paper and then input it later. Youth and community centres are often under-staffed so someone sitting in an office is not practical. For this reason I have developed a system that can run on both a web based browser, and a companion system on a tablet device. I developed the web based system in PHP using The Eclipse Foundation's IDE and the Zend framework. The tablet I am developing for is the Motorola Xoom; as it is a Google Experience device. Motorola have released their own augmented version of the Eclipse IDE called MotoDev which I have used for the Android development.



Jonathan Holmlund University feedback system

For my final year project I have created a feedback and achievement system for Teesside University. The software has two distinct parts – firstly, a website providing an interface for students to view their tasks and compare achievements with fellow students, while also providing administration features for lecturers to manage their modules, tasks and achievements and secondly, an iPad application for lecturers to use in classes, enabling them to reward achievements and give feedback on the students' work. I created the website using Microsoft's latest technologies including ASPNET MVC 3 and the Entity Framework using Code First development. I created the iPad application using Apple's iOS5 technology, using new features such as JSON integration, ARC and storyboarding.



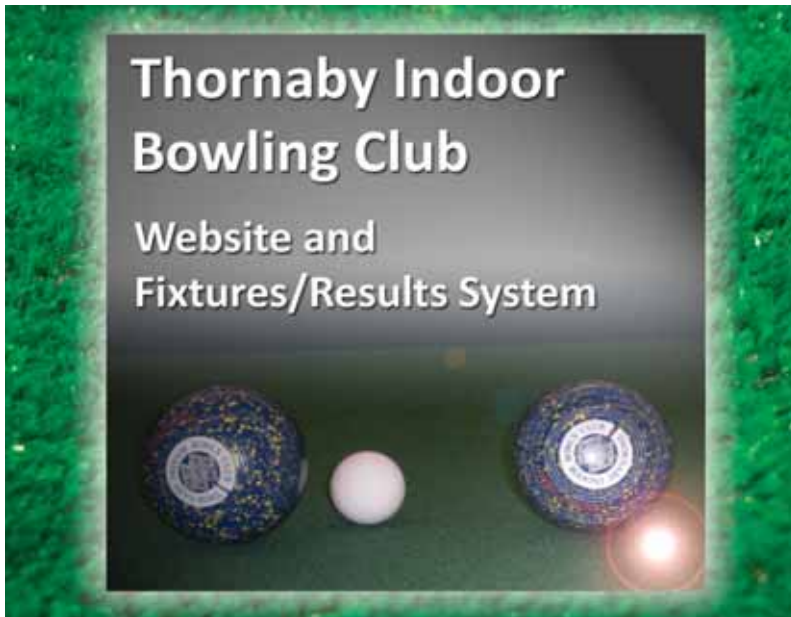
BSc (Hons) Business Systems Design



James Armstrong Supreme Training – web system and mobile application

For my final year project I created a database driven website and Android application for a personal training business. The website allows users to create their own profiles which administrators can update with any workouts/progress. Users can also book a session, upload their own content and interact via a message board. The application uses GPS and Google Maps to display a route that the user has undertaken on a workout, the time taken and the average speed. The user can then keep a track of this and any other workouts/diets by uploading it to a SQLite Database. The website was developed in Adobe Dreamweaver using PHP, XHTML and CSS3. The database was created in MySQL. The Android application was created in Java using Eclipse. SQLite Database Browser was used to manage the database of the application.





Ben Oliver Suggitt Thornaby Indoor Bowling Club website

I have created a web-based system allowing staff members at Thornaby Indoor Bowling Club to maintain bowling league fixtures and results. Bowling members can then access the website to view league results and league tables. As a member of the club, I was aware of the issues associated with the management of internal bowling fixtures and results. Following discussions with the committee and club members I developed a solution to address the issues. Using the solution, staff members can now create new league tables, add fixtures to the fixture lists and update results as the fixtures are played. All data is held within a database on a web-server. Results can then be retrieved and displayed by bowling members on the website following registration and log-in. The website was created in Notepad ++ and Adobe Dreamweaver, using a combination of HTML5 (to portray the front-end interface), PHP (to execute a series of pre-programmed functional commands) and data held in a MySQL Database. Adobe Photoshop, CSS3 and Premiere Elements were used to render graphics and the front-end interface.

BSc (Hons) Software Development



Michael Louis Lojko HomeView – a desktop surveillance application

For my final year project I have designed and implemented a desktop surveillance application. Using most generic USB web cameras it can display up to four live video streams as well as play a single live audio stream in real-time. Additionally, incidents can be triggered, which records all of the stream data and provide an output file. These files can be reviewed directly through the intuitive user interface whilst the application continues to process the live streams simultaneously. Incident triggers can be fired manually or by using motion detection algorithms, which are also displayed live and in real time on the video streams. The software was developed in C#, using Visual Studio 2010 and adopts a model view presenter architectural pattern.



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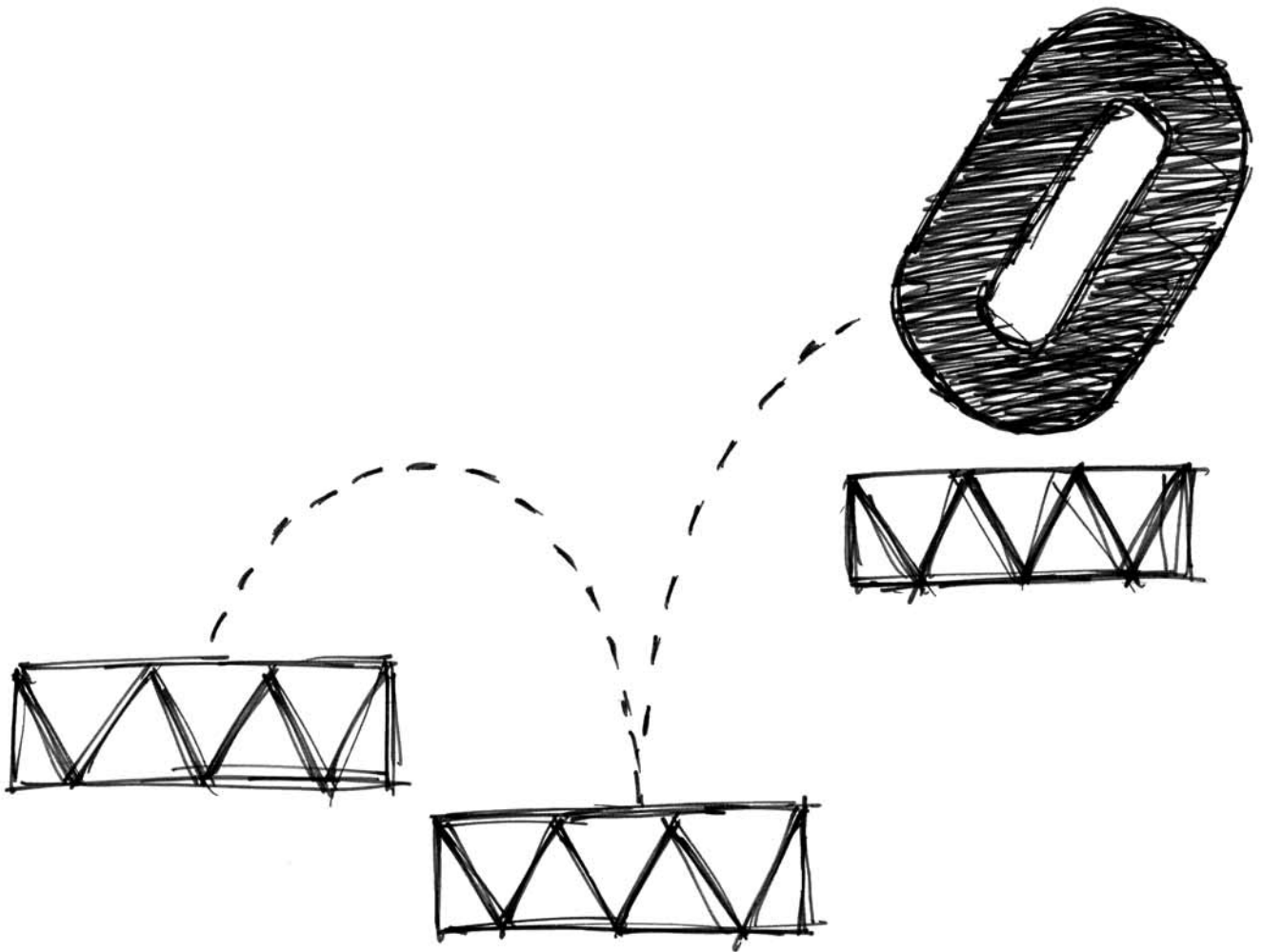
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Games Concept & Design

The birth of a computer game occurs within the imagination. The concept, creating the world, the characters that inhabit that world and that subsequently interact through game play, the game play structure and level design are all represented at ExpoTees. These projects reflect work in games such as storyboarding, interface design and level design. We're very proud of our graduates who can now be found at many of the leading games companies around the world.



Louis Hayes Greenwood

Octopus lab environment

For my final year project I created a next generation environment using a piece of Crysis 2 concept art as a base and further developed it with my own themes, adjustments and motifs. The scene consists of a scientist's apartment where he lives and works, performing medical research on various species of octopi and plants. My main ambition was to communicate a story through mise-en-scène elements, including props such as newspapers, photographs and post-it notes, so the player will fluidly know the character with no need for intrusive cut scenes or further exposition. To create the scene I used ZBrush to create high poly assets, 3D StudioMax for producing the low poly models, unwrapping and baking the various maps and Adobe Photoshop for producing the textures. All these elements were then placed in the Unreal Development Kit for final composition.



Aaron Hicks

A vista of Bristol

My project was based on my home city of Bristol. The idea was to take some of the existing features of the city and construct a completely new section that could blend in seamlessly. The purpose of this project was to both demonstrate and improve my abilities as an environment artist, using industry level pipelines to create assets and textures. The scene was composed inside the Unreal Development Kit to show how my work holds up inside an AAA game engine, and to take advantage of its powerful tools. Autodesk 3ds Max, Adobe Photoshop, and ZBrush were used for the majority of my project.



Sean Wenham

Deus Ex environment

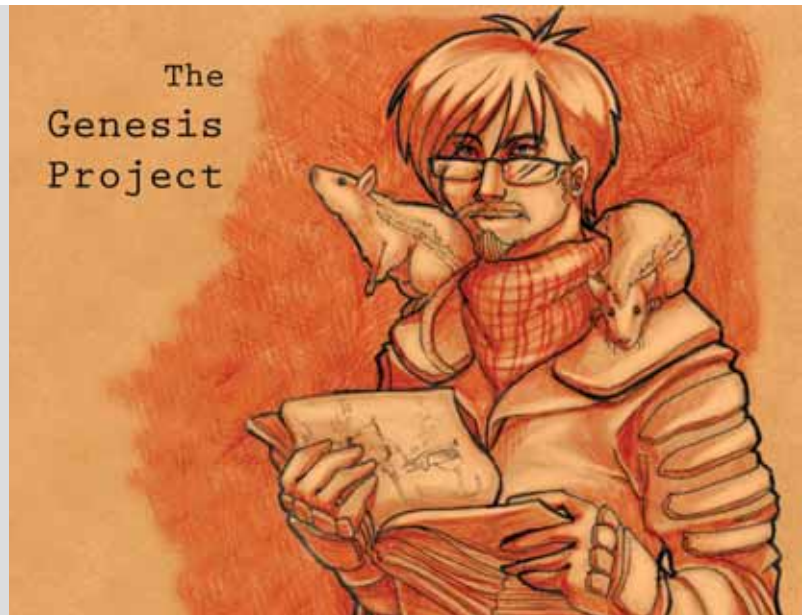
For my final year project I have re-created an interior environment within the Unreal Engine, based on a piece of concept art from the game Deus Ex: Human Revolution. I chose this particular environment as it contains rich aesthetic values in both form and detail. The apartment depicted in the concept is dynamically lit in a film-noir style and the individual props are ornately shaped and covered in detailed patterns and flourishes. The concept, and the Deus Ex game itself, are influenced heavily by the Renaissance and Baroque styles, as well as neo-noir fictions such as Blade Runner and Ghost in the Shell. This eclectic mix of styles has a great deal of appeal and has kept me inspired throughout the project. For an efficient pipeline I used Autodesk 3ds Max to create the props, ZBrush to create high resolution sculpts to detail the models and Adobe Photoshop to finish the textures. Finally it was composed and lit in the Unreal Engine.



Veronica Heath

The development of creatures and concept art

The focus of my project was on developing and creating creatures and environments based around my own narrative and ideas. The project was presented in the form of an art journal, filled with sketches and paintings I completed throughout the year. I wanted to develop my drawing technique, as well as learning how to structure fictional creatures based on real animals. Through the journal the viewer follows the story of Charles Nuwrad, a scientist travelling with a group of mercenaries to document the world after a century of natural (and unnatural) disasters. The project showcases my artwork in an exciting and interesting manner. The drawings were created using traditional media, before being taken through Adobe Photoshop. I used a variety of resources and references throughout the project, including studying the work of both Leonardo da Vinci and Charles Darwin.



Ciaran Daly

Storytelling environment art showcase

The foundation of my project was to create an environment in the Unreal Development Kit showcasing my environmental modelling and scene composition skill with a strong focus on quality. It also contained a storytelling aspect, drawing inspiration from *I am Legend* and other apocalyptic fiction. An environment showing the world on the edge of disaster and a character in this universe – their actions and reactions being greatly influenced by this genre of fiction. The implementation depicts an apartment turned home lab, the character's preparation for the apocalyptic event and his desperation for a cure.



Simon Anderson

Interactive real-time portfolio

This interactive real-time portfolio, made in the Unreal Development Kit, showcases some of my work, along with some newer models created just for this project. The reasoning behind creating this in real-time in a game engine, is not only to show my work off in all its glory, but to help give me a better understanding of what goes into creating and implementing characters and other models into a game engine.





Tom Yearby

Stylised medieval environment

I have designed and created a stylised medieval environment using the Unreal Development Kit. I have always had a passion for architecture and decided to create a full environment in an art style influenced primarily by the Fable game series. My main aim was to create an environment that would be at home within a game such as Fable. I modelled assets in a modular fashion so they could be placed inside the game engine to construct a variety of unique buildings. By doing this I could build up the environment quickly inside the engine. All assets were made using Autodesk 3ds Max. High poly normals were either sculpted using ZBrush or CrazyBump, depending on how high the detail of the model. All texturing was done using Adobe Photoshop and placement of assets and scene creation was all done using the Unreal Development Kit



Yong Kang Loh

Celestial

Project Celestial is a mock massively multiplayer online role playing game (MMORPG) project for myself to create a series of concept art based on a certain theme and story. Based on a story inspired by a Chinese epic novel, I have created a number of character designs for the different job classes in the game, as well as some environment arts to support the look and feel of the world. The themes for my designs are oriental, ancient Chinese, and slight fantasy. The MMORPGs that inspired me for this project are Ragnarok Online, Guild Wars 2, World of Warcraft, Blade, Soul and more. The artworks for this project were created entirely in Adobe Photoshop CS5.



Mira Karouta

Amman – The White City

My project is set in an area inspired by my hometown Amman, in Jordan. Amman is often called The White City due to its unique white buildings. My focus is on the downtown area which comprises of local souks and independent shops with several rundown buildings. I have made a scene that is efficient yet varied – although the buildings are similar it's difficult to find two matching buildings in the city, every building has a character of its own. My environment subtly portrays the injustices and struggles that exist for the people who inhabit this area. The assets are all constructed in Autodesk 3ds Max and the textures were developed in Adobe Photoshop as well as ZBrush. The entire scene was assembled and lit in the Unreal Engine.



Samuel Luke Miller

Empathetic character design for games

I have designed and created a 3D modelled child character and his loyal pet for use in an adventure style computer game. Genuinely lovable characters are something we see less and less of in modern computer games and I believe that they still have a place within the medium. The character and his pet have been designed in both appearance and animation to tackle this issue. I have also designed the character and his pet's appearance to change, dependant on their environment. For the design, concept art and model texture work I used Adobe Photoshop, modo to model and UV to map the characters, ZBrush to produce the high poly normal maps, Motion Builder to clean up the motion capture data and Autodesk Maya to animate.



Keith Miller

From 3D to reality

For my final year project I have created a collector's edition for a game of my own design. The collector's edition comes with three character figurines, art-book of the development and a limited A1 poster. The inspiration for this project came from seeing Elder Scrolls V Skyrim collector's edition. Seeing the dragon on a stand gave me the idea to create something that was unique and different, both to me and to others. I didn't just want my characters to be on the computer screen or a printed out render, but also be in the physical world, that people could pick up and get a good look at. The concept artwork was created using traditional and digital drawing. The character figurines were created digitally using a combination of Autodesk 3ds Max and ZBrush.



James William Whatling

It Came From Space

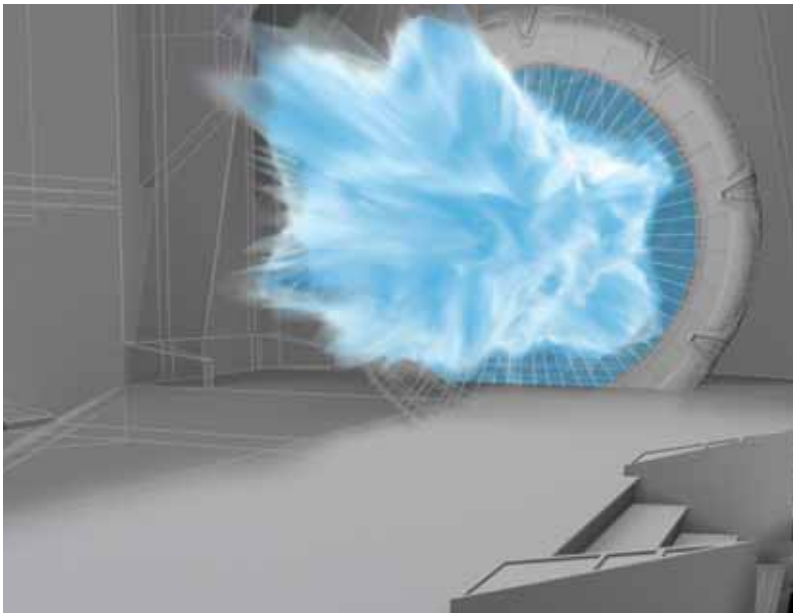
I have made a short cinematic including a number of visual effects to showcase the use of Autodesk 3ds Max particle effects and third party plug-ins such as FumeFX and RayFire. With the composition of green screen footage, using a live actor and Adobe After Effects and texturing of assets with Adobe Photoshop CS5. A number of other software programs were used for testing and for small areas of the process including Houdini, Fusion, Terragen 2 and Autodesk Maya. The theme is of a classic B-Movie, with alien invaders travelling to Earth in traditional flying saucers, then launching a probe at the Earth, entering the atmosphere then crashing somewhere in the Antarctic close to a government research station. Inside, a lone scientist sits bored until the radar and instruments go haywire and there is an explosion from outside. Somewhere in the blizzard a shape moves and shadows the building. This sets the scene as the opening for a TV show or film, or as a trailer for a game.





Shirin Gin Hui Teh
Mahsuri

Based on a few Malaysian folklores combined together to make a story with a twist, my project is a series of concept art and designs for a game idea. The pieces, consisting of character design, environment design, narrative storyboards and concept arts, were all digitally painted using digital tools including Paint Tool SAI, Adobe Photoshop and Corel Painter. Using the motifs, stories and themes from my country, I wanted to embed the things that I grew up with, together with the things I love to do the most. The story revolves around a wronged heroine who has lost everything she loved and tries to seek revenge and redemption by taking on the tasks sent by the kingdom that spurned her. She slowly works her way to the top of the chain, hoping to seek release from her self-torment by destroying the kingdom.



Krishan Shiyani
Pre-rendered cut scene
concept and environment

I created a pre-rendered cut scene concept for a non-existent game based on the TV show Stargate Atlantis. After following the Stargate franchise throughout its twelve year run, I created a visualisation of the Atlantis main control room seen in nearly every episode. By compiling mainly screen shots from the series I was able to create a large reference library to help make the environment look as close as possible to what is seen on the show. After looking at the game Stargate Resistance, although a good looking game, I was disappointed with the effects used for the Stargate activation sequence. I tried to create my own effect that resembles the effect from the series. Using Autodesk 3ds Max I created the environment, the animation and the effect for the cut scene. Textures were composited using Adobe Photoshop. For the high poly detail, ZBrush was used to create height and normal maps. Finally, I brought my environment into the Unreal Engine using the Unreal Editor so it can be explored.



Christian Groves
Warehouse

I have created a small environment that could be used in a game. The environment is a small warehouse which has a selection of weapons I have designed and created. I have also created a forklift truck as well as filling the space with various assets that can be found in a typical warehouse. There are two variations of the same area. The first is set during the day while the warehouse is still in use, an everyday environment. The second is set at night, a long time after a destructive event. I have also created a variety of particle effects to help bring the environment to life. I have created all the assets using Autodesk 3ds Max. The textures were created using Adobe Photoshop and I compiled the assets with their textures into the Unreal Development Kit, to make the environments and to create the particle effects.



Pavan Singh Plaha

An artistic study of human anatomy

I have recreated the human body in layers in order to conduct an in-depth study of surface anatomy. I have also researched different body types and how the underlying anatomy affects the overall form. Inspired by classical and renaissance artists, my study takes the form of a digital sculpture, where every part relevant for describing surface anatomy is a separate piece. Recreating the body in such a way made me aware of not only the form of each individual muscle, but how they conform to one another and most importantly how they, together, describe the form of the human body. I wanted the body to look natural so used medical resources for research including dissections and CT scans. I sculpted the skeletal, muscular and integumentary systems of the human body of different body types in ZBrush, after creating the majority of the base meshes in Autodesk 3ds Max. A mixture of ZBrush and Adobe Photoshop were used for painting each piece and rendering.



Dominic Pearce

3D design for film, game and mobile

I have designed a character and vehicle in the style of retro futurism, which I have then adapted to explore the differences in workflow and technologies used when creating assets for mobile, current generation games, and film. The pieces created helped me hone in on what makes a successful design per platform. I also gained some insight in what future technologies games assets might be using, such as sub surface scattering, and Catmull-Clark subdivision surface modelling, both of which are explored in my film resolution models. To create the designs I used SketchBook Pro and Adobe Photoshop, the modelling was completed using modo and ZBrush. I used Marmoset Toolbag to render the game resolution assets, and modo for advanced shading for the film resolution renders.



Cameron Stamper

Light'well Hall – advanced lighting study

My project is an in-depth study into advanced lighting and post processing effects, specifically advanced lighting within the Unreal Engine. This innovative engine is the perfect tool to frame and showcase my lighting skills and my ability to realistically light any event or time in a scene. This is shown through one small but detailed scene to which I have lit at four different times. The first three scenes have an overall factor of time and the fourth an event. The scenes focus on midday, midnight, sunrise and a fire engulfed building (using Particle Effects). Programs used were Adobe Photoshop, Autodesk 3ds Max and the Unreal Development Kit. By producing this project I have improved and learnt new skills thus bettering myself for a career as a lighting artist.





Adam Charles Robinson

Surviving Andromeda

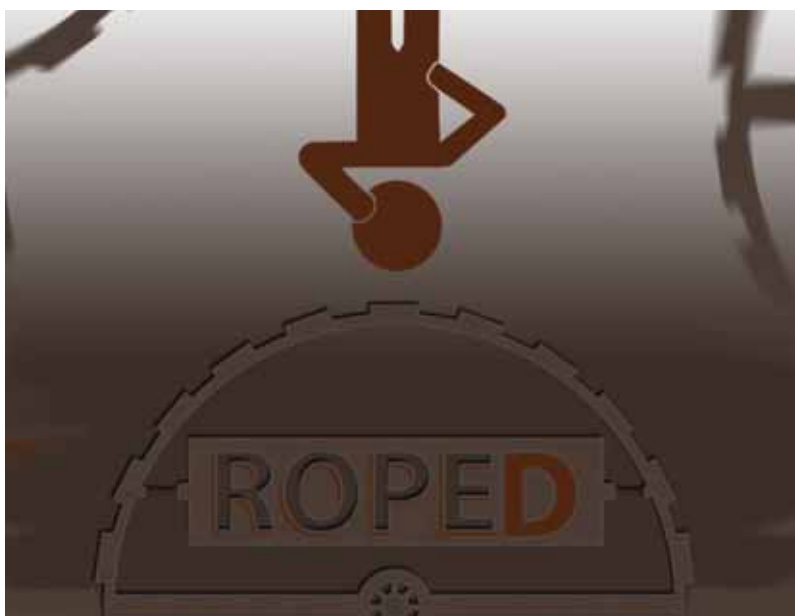
For this project I designed and built a computer game specifically for IOS devices, using only found assets. It contains features that are specific to the IOS platform. The game was designed to be released as an application ensuring all features would work on the intended device(s). My main focus was to explore the platform and to produce a game with engaging gameplay using features such as touch screen input to make the player interact with the game environment. Creating a game with the new features and constraints provided by the platform made me consider and iterate the design to make the level flow and keep the player engaged. The game was built using the Unreal Development Kit, particularly for the IOS capabilities that have now been released with the level editor.



Petter Sebak Jorgensen

A Slightly Heinous Crusade

A Slightly Heinous Crusade is an exciting and different 2.5D side scrolling adventure game. The player takes on the role of a demon prince of the underworld on a quest to take back the unholy relics that fuel the underworld's powers, from the angels who aim to bring peace to earth. This exciting game features an entertaining levelling system and beautiful graphics.



Reece Neumann

Roped

Roped is a unique real-time puzzle game concept built using Valve's Source Engine. Formed to showcase that some of the risks of developing new and more unique games can be eased and developed just as well on pre-existing game engines with minimal modification. The player awakens to find that they've just slept through a somewhat boring but informative tour of an elaborate and slightly out of control rope spinning factory. Unfortunately the player, who wasn't too interested in the multiple types of ropes produced, fell asleep and got left behind. Now trapped inside, the player must gain, and creatively put to use this information, in order to survive and make it out alive.

BA (Hons) Computer Games Design



Richard Baines

Designing a successful iOS game

To help both enthusiastic gamers with a story, and smaller studios, I created a book on designing a successful iOS game using the design principles I learned from working in the industry for Ubisoft Reflections, as well as from my findings after extensive research. To support the book, and prove its principles, I have also created a design document using the principles found in the book; including plans for a prototype. Developing a game has become increasingly easier due to the release of mobile platforms, specifically iOS. This has led to an influx of indie studios and start-ups. To help validate both my research and the principles of the book, I also created a full design for an iOS application, demonstrating the practical skills that I learned in the industry. I created the guide and design document using Microsoft Word and Excel. To support this I also created diagrams using both Adobe Photoshop and Microsoft Visio, using them to draw concepts and create flowcharts and levels.

Designing a Successful iOS Game



BA (Hons) Computer Games Animation



Jacob Feeley

Creating real-time cut scenes

My project demonstrates clean body and face motion capture animation in a cinematic, and uses tessellation to enhance character silhouette. The final product includes a finished character with a skin shader, cleaned body/face motion capture and apex cloth simulation of clothing. To create the real-time cut scenes I used DX 11 Technology in the Unreal Development Kit.

Jacob Feeley

Creating real-time cut scenes using DX11 technology in UDK



Richard Macey

Self portrait animation

For my final year project I have modelled and animated myself. The animation involves both body and facial animation, all of which is hand animated. The idea behind the animation is to portray many different moods and expressions in the short time of this piece. The animation also focuses on lip syncing and how the body moves depending on the dialogue. I chose to model and animate myself not just because of the endless amount of reference images I could use, but I was able to act out the scene and push my animation further to get the most realistic animation that I could. The software I used for this project was Autodesk 3ds Max and Adobe Photoshop.





James Hunter

A Divide of Mediums

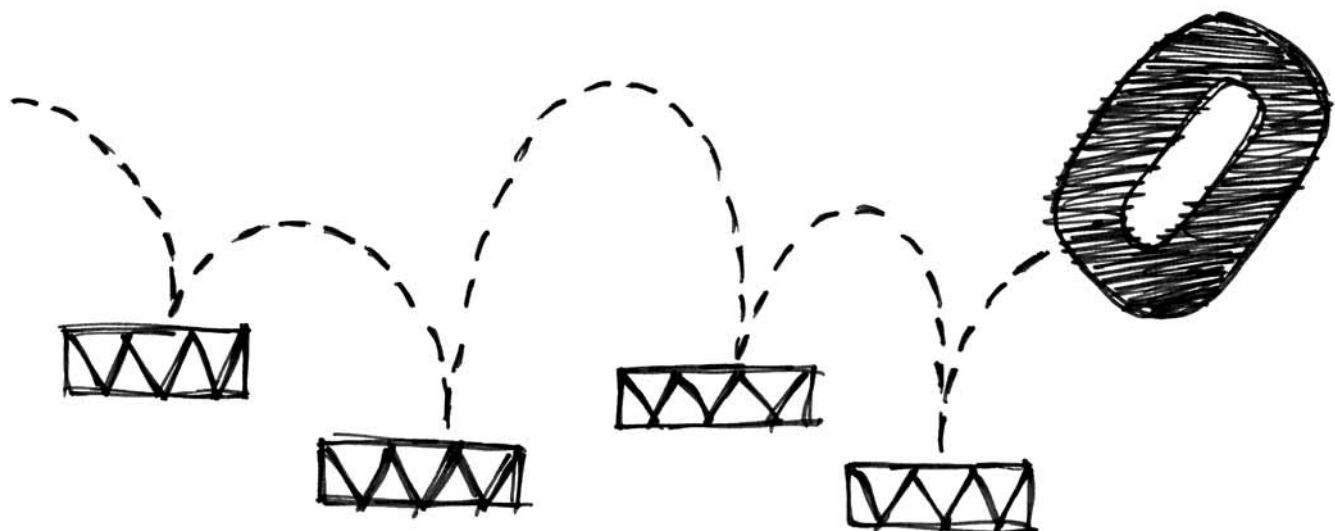
A Divide of Mediums is a piece that incorporated the range of skills that I have accumulated over the years. It captures a dialogue between two characters. One version of the scene is hand-animated; the other uses motion capture for the characters' body and face. The key was to find a synergy between the two performances so that they looked natural. The complexity involved was vast as I had to combine two types of rotational data. The story is of two goons, a man and a woman, watching over a stash of money for an unidentified criminal (it doesn't matter who he is, because the focus is purely on the chemistry between the two characters featured.) The girl is a young recruit and unaware of the world she has entered, she sits across the table from an old rough and tough male veteran of the syndicate. This let me explore the awkwardness of the situation. After a quick dispute the man attempts to ease the recruit's mind and maybe even fears. The piece shows an artist's rendition of action in animation and how it differs from the real life representation of movement.



Jack Turner

A 3D fire simulation

I created a pre-rendered animation and in-game animation of the same footage, demonstrating what happens when fire engulfs a room. I did this for a fire safety campaign to raise awareness of how quickly a fire can spread. My inspiration came from volunteering to help with Crucial Crew – an annual multi-agency event for year 6 pupils (10-11 year olds) who participate in a variety of scenarios to learn how to cope with a wide range of safety issues. I realised school children attending the event did not understand the devastating effects of a small fire. To produce my animations I used the particle system in PFlow in Autodesk 3ds Max, and the particle system Cascade in the Unreal Development Kit. I built the 3D model in Autodesk 3ds Max, used Adobe Photoshop to create the textures, Pro Tools to add the sound effects and then Adobe Premier to add some post-editing. It was a large-scale project but I loved every minute of it!



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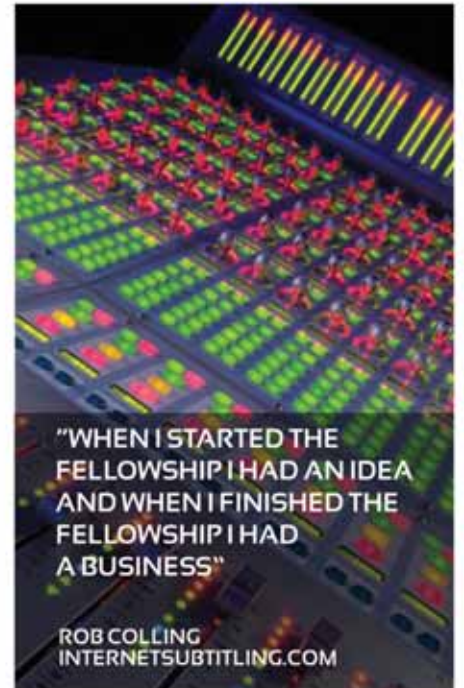
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Web & Digital Media

These projects are wide ranging and cover several disciplines which all share a common theme of using highly engaging visual and audio media to support commerce, business-to-business web services, education, social networking and entertainment. The research and design projects in this section present work that reflects the creative, interactive and technical aspects of website and multimedia development, demonstrated by using emerging technology and developed for a range of platforms.

BA (Hons) Creative Digital Media



Mark Peart

Character animation show-reel

I have created a number of short animation pieces to promote my character animation skills to prepare me for the industry when I leave University. The pieces were created based on industry professionals' feedback on what to contain in my personal show-reel. The aim was to produce highly polished character pieces to show a variety of movement and emotion within my acting choices. The pieces were all created using Autodesk Maya for the animation/modelling/lighting. I used Adobe Photoshop to add textures, and Adobe After Effects to composite the different render passes and edit the colours and effects.



Gennaro Grazioso

3D character artist

I have created a series of highly detailed character models which meet current industry standards. The characters range in style from realistic to stylised which demonstrated my wide range of artistic skills.



Tore Aleksander Thoresen

Svarttrost – Short Movies

Svarttrost (Blackbird) – Short Movies is a 3D animated series. The series is meant to make you think, "What is the meaning of life?" ...and you get the answer, "To watch funny and meaningless cartoons!!!" It is made purely for the purpose of entertaining people, people that like morbid comedy. The series is about a blackbird that is killed in each clip in a number of grotesque, but creative ways. These short film clips will be published on the website Svarttrost.com.



Per Viggo Bergsvik

Drink if you dare

How do you best blend CG and real footage to create an illusion of reality? I wanted to find out how. The big secret seemed to be a lot of hard work, research, and attention to detail. I have created a fictional advert for a fictional soda called Dare, where a man on the street gets in trouble when he encounters a monstrous robot. My main goal of the project was to blend CG and real footage in the most realistic way, as close to industry standard as possible. I went through the whole creation process from the initial idea, storyboarding, filming, creation of CG character, animation and composition. I had help from professional actor James Harris and sound technician Bjarte Hansen. I used Adobe Photoshop, Nuke, Autodesk 3ds Max, and Boujou.



Daniel James Collier

The building of Serenity

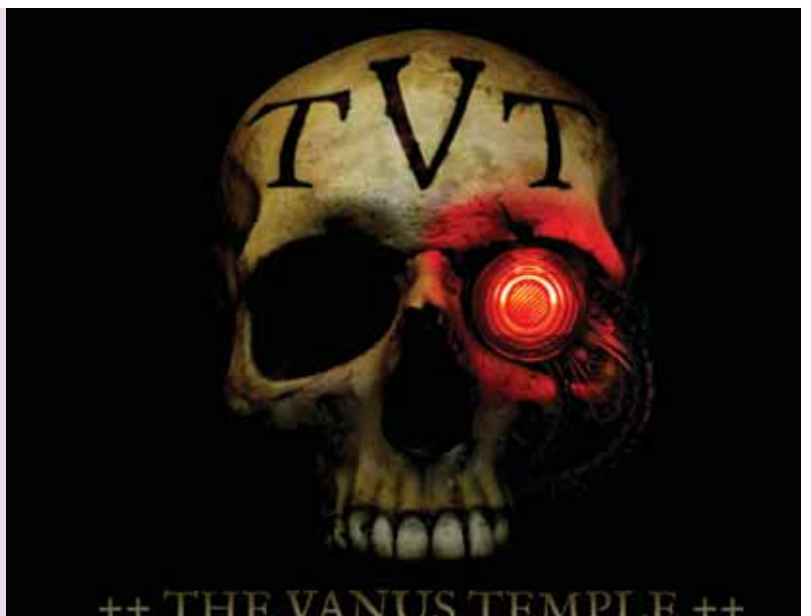
For my final year project I have created a 3D model of the spaceship Serenity from the TV series Firefly. I have modelled both the exterior and the interior, taking reference from the official Serenity blueprints and footage from the TV series. I chose to do this because I have always been a fan of the Firefly series and wanted to work on a modelling project that would be a challenge. I felt that the scale of the spaceship and its contents would allow me to experiment and extend my knowledge of Autodesk Maya as I originally learned to model in Softimage XSI.



Timothy Luke Davis

The Vanus Temple – a hobby blog and modelling gallery

For my final year project I chose to re-brand a live website called The Vanus Temple which displays and promotes table top wargaming figures and kits. The site has been live since 2009 but, through multiple theme adjustments and inexperienced handling, has become slow and developed poor accessibility standards. The site runs on WordPress, a powerful content management system, allowing me to use the easy-to-use features of the system to my advantage. With WordPress being highly customisable, I was able to create a very individual theme for the site using Adobe Photoshop, as well as use all the new features of HTML5 and CSS3.





Jorgen Engen Napstad

The Vikings are coming!

I have extended a video plate I shot in York with a CG set extension and a background matte painting. I wanted to create a visual effect shot that not only demonstrated different techniques, but also told a story. I made a shot set in ninth century England when Danish and Norwegian Vikings were raiding the land. This was inspired by the book series The Saxon Stories by Bernhard Cornwell. The shot was created using Autodesk Maya, Autodesk Mudbox, Adobe Photoshop, Vicon Boujou and Nuke. I filmed the plate myself with my Sony Alpha 35 SLT camera.



Rahul Singh

Graphic commercial for a gadget



I have created a commercial/advertisement for a music player. I wanted to create a commercial of the Apple iPod Nano, keeping in mind the quality standards of the advertisement and motion design industry. I made an iPod commercial because this is a passion of mine, and it would also give me a good opportunity to work with music and gadgets, and improve my skills in this area. Key is how a new product in the market is introduced to the public. In other words, how some incredible graphics and excellent directing can make a commercial attractive to the audience and make the product receive high demand. The project reflects my expertise and interest in the area of design and advertising. It includes music, live action, motion graphics and 3D animation. I used Autodesk Maya (to build a 3D model and to do 3D animation), Adobe After Effects (for motion graphics and compositing) and the University sound studio for the live action video shoot.

BA (Hons) Web and Multimedia Design



Alexander Richard Brock

Responsive web design – designing for an adaptive world

The way we view the internet has changed dramatically thanks to the many different mobile devices in circulation. With this in mind, I designed and developed a website that adapts its appearance accordingly when viewed on different sized devices, thus resulting in an optimum user experience. The website itself provides information on the use of CSS3 Media Queries, and how they can be used to produce an adaptable website that works on multiple devices. The process focuses on the methods and mark-up involved in using CSS3 Media Queries, as well as the most common devices and screen resolutions. Designs and layout elements for the site were created using Adobe Photoshop and Adobe Illustrator, while the website was developed using Adobe Dreamweaver using HTML, CSS3 and JavaScript.



Timothy James Gale

Agility – agile project management

I developed a project management web application for teams who have adopted an agile working methodology. The application gives an immersive collaboration experience that applies the principles and practices of agile development to an online environment, supporting small to medium sized team projects. The concept project came from working in a close systems development team during my placement year. This involved continuous collaboration surrounding a number of different web development projects. The application streamlines the management of agile development with each team member being able to access release dates, sprint goals and task assignment, as well as an up-to-date stream of each member's activity. Product implementation involved developing a three-tier architecture. The latest HTML5 standards and JavaScript were used for the front-end, object-oriented PHP supported the data logic, while a MySQL back-end handled data access. Adobe Photoshop was used to create graphics for browsers that were not capable of supporting the features of CSS3.



Cassandra Reynolds

Reading encouragement and assessment tool

I created a reading tool built for tablet computers for a school environment. This was created out of my own experience of not reading enough as a child and the demand for better literacy skills from our youth. The tool assesses the student's accuracy of readership which is fed to the teacher's account. The reader is unaware they are being assessed but instead under the impression they are just enjoying a book, rewarded with end chapter animations and a bookcase of completed books. The application is made using web scripting languages including HTML5, PHP and JavaScript to dynamically interact with the database and choices selection. The graphics were made with Adobe Photoshop and Adobe Illustrator while the animation was created in Adobe Flash.



Stacey Dougal

Craft a Card – interactive card design application

Craft a Card is a fictitious company that offers an interactive application enabling users to fully customise a handmade greetings card: from the size and shape, to the colours, materials and text. Upon creating their unique design the application generates a list of materials needed to create the card. The user can save an image of their card with the list of materials they need to source to create their card(s). The application offers users an alternative to shop-bought or online greetings cards, allowing them to design a quality homemade card for any occasion with ease. Within the prototype I have used drag and drop capabilities to allow the user as much control as possible. Graphics were created using Adobe Photoshop and Adobe Illustrator in order to create an attractive application available on the accompanying company website.





The place where
ideas
 spread between
 people



Geoffrey Roy
Social network for education

My final year project is a social network for education aimed at creating a closer relationship between students and teachers, as well as making the experience of learning and teaching more exciting. The website allows users to share and discover content related to their studies. They can sort the content by groups and then view or share what they want, depending on these groups, with their fellow classmates and researchers from all over the world. They can also search for people by the skills they learn or teach. All the content that is shared is rated to ensure its relevance. The website is built with Zend, which is an object-oriented PHP framework and runs a MySQL database. It implements some elements of HTML5 and jQuery.



**Code.
 Educate.
 Develop.**



Gareth Anthony Williams
Code-ED
(Code. Educate. Develop.)

Every year new computing students face unnecessary difficulties because they have enrolled on intensive programming courses without the basic knowledge and understanding of the programming language(s) required to fully engage with the course material. The issue stems back to school ICT lessons: teaching students how to use basic programs rather than on the understanding of how the program was made or how it works. The Government and businesses, including Google and Microsoft, have called for a change. I have developed an independent project to rectify this issue by creating an online (multi-platform) educational learning tool. It provides students with the support, knowledge and tools to learn the required programming language(s) and develop their skills to fully engage with their course material.

onefolio
 creativity unleashed



William Luke Bennison
Onefolio –
a social portfolio network

I have created a social portfolio website for those in digital media that simplifies the process of portfolio management, job hunting and employer engagement. The website showcases a user's work and information to prospective employers in a standardized format on a social network platform. The website, written in HTML5/PHP and Ajax, allows a user to register and upload their work to their personal portfolio page. Similar to LinkedIn there are About Me, Contact Information and Skills sections. Employers can browse the site by user or skills category. To inspire innovation and creativity only the most highly rated work is shown to employers to ensure that most deserving and skilled users get offered jobs first. Other site features include a showcasing area. There is a huge demand from employers and people in the field of digital media for a website which cuts away all the bureaucracy of portfolios and gets to what is important – the content. Onefolio makes online portfolios a faster, simpler and more social alternative.



James Poel

Online portfolio creator

The internet is a great platform for the exhibition of creative work. As a result of this it is home to thousands of online portfolios owned by inventive individuals. It is, however, important to note that not all these individuals are web designers or web developers. Furthermore, many people refrain from creating an online portfolio owing to the associated cost and development that comes with building a website from scratch with little or no technical skills. To solve the problem I proposed a Web Application specifically intended to allow users to design, create, and manage their own personal online portfolio free of charge. The Web Application has a variety of features, including the ability to upload a CV, update employment and education history, send and receive private messages, and, of course, upload and manage portfolio work. The website is also equipped with a search feature, allowing employers to seek potential employees. The target audience of the application is creative individuals of all ages and genders belonging to the socio-economic groupings A-C2. Employers are also part of the target audience.



Jackson Daniel Armstrong

Educational content on social networking platform – a study

I have undertaken a research based project to look at why university students engage more with educational content when it is on a social networking platform. An example is the success of university Facebook pages which often get more engagement from students than platforms offering the same information, but that have been established by the university body. The report also addresses other related questions such as students' response towards university staff that use social networking platforms in an attempt to further engage students. As a physical deliverable there is a mini social networking site created with the use of WordPress and a plug-in called BuddyPress. The study looks to see if it is possible to get students to engage with this platform with the content being university educational information. See my blog at youbetaye.com for more details.



BA (Hons) Digital Music and Animation

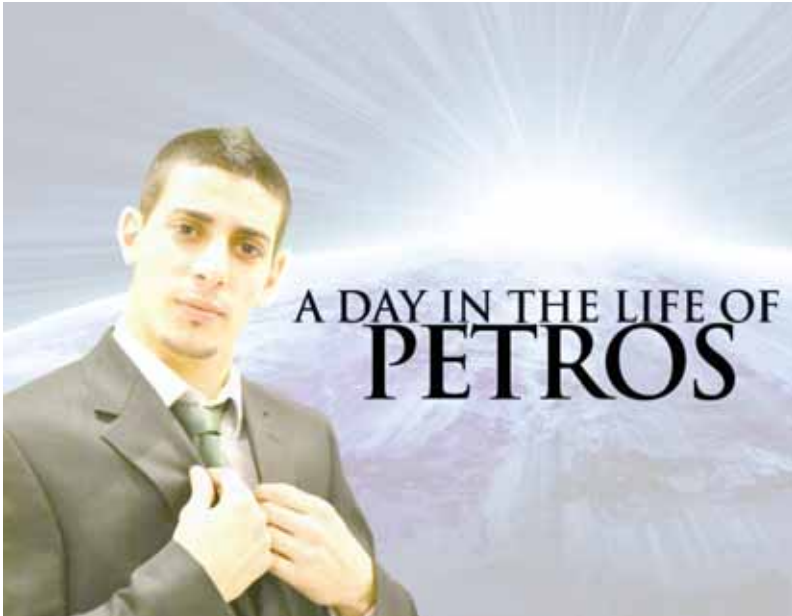


Samuel Markham

Knight Boy

I have taken on all applicable roles of production to create this animated short, based on a fictional comic book character that is brought to life through song and story. A few friends with obsessive interests won't end the night until exploring a fairly rare and exclusive edition of a comic book. The contents of which, are depicted using full motion graphics, synchronized to the partnering song lyrics. My aim was to heighten my skills in the accompaniment of visual and audio mixed media elements for film production. I used a collaboration of 2D and 3D animation techniques, alongside transitions and visual effects. Multichannel surround sound was used to produce a cinematic experience. This short movie was created using Pro Tools, Logic Pro, Adobe Photoshop, Softimage, Adobe After Effects, and Final Cut Pro.

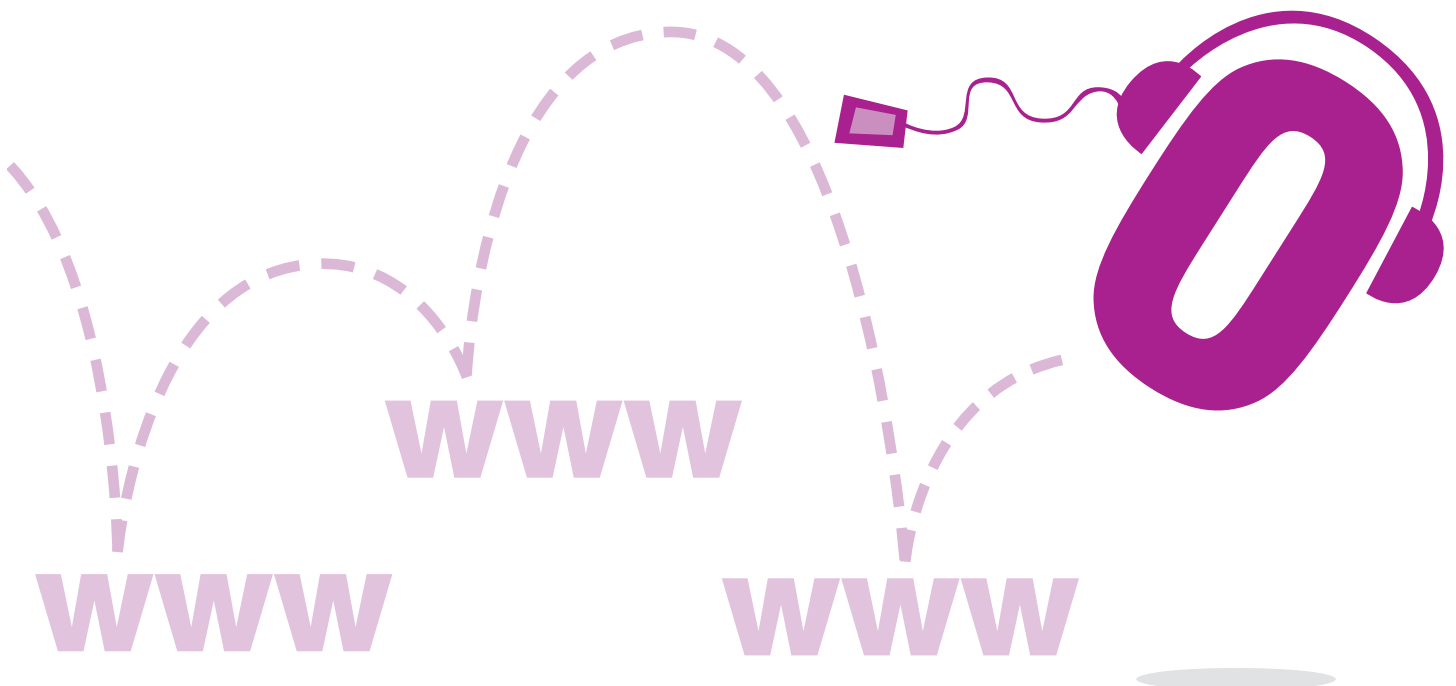


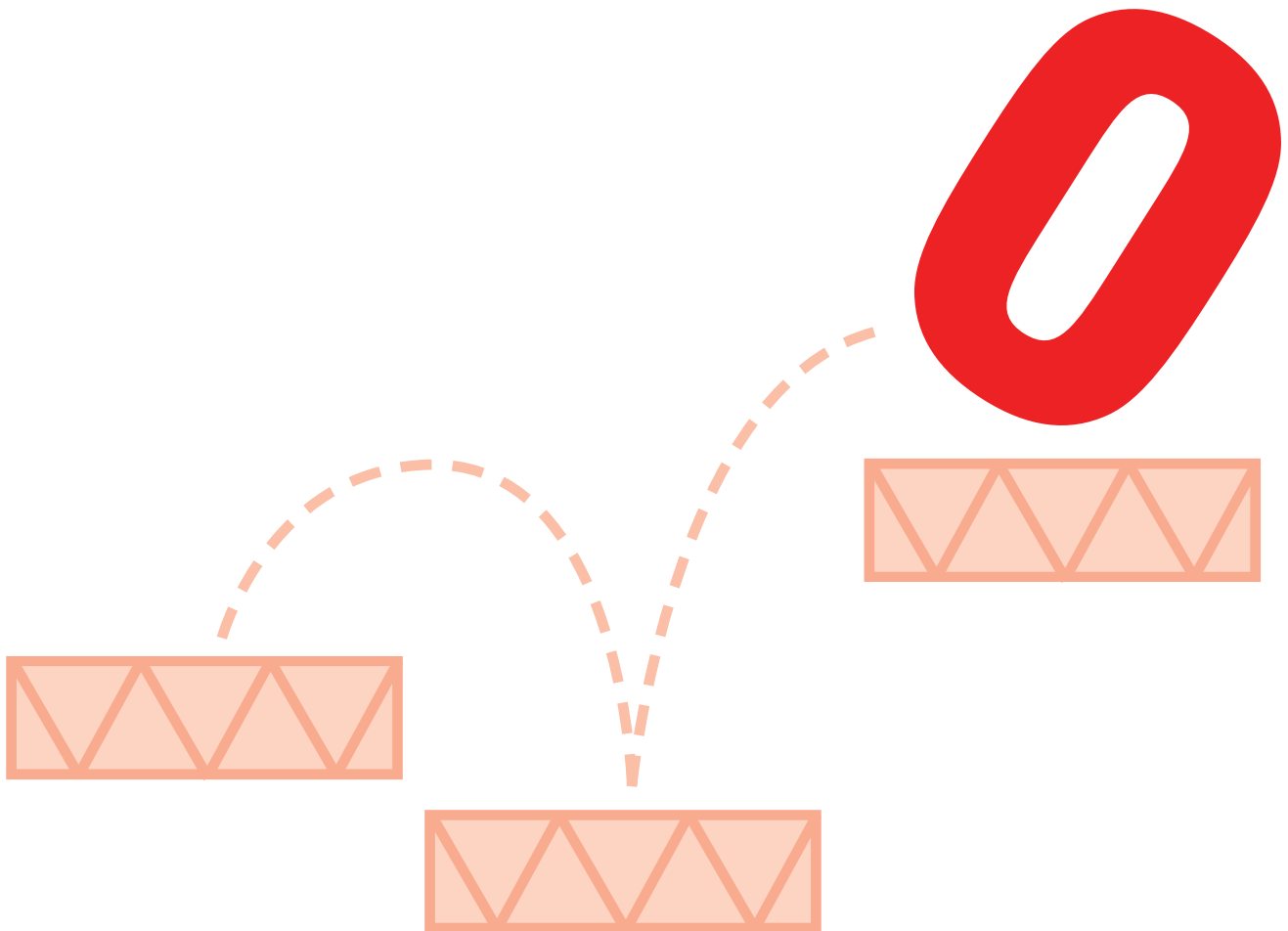


Petros Georgiou

**A day in the life of Petros –
studio time**

My short film feature follows me as I tackle a day of my life. Cast as different actors, all played by myself, I use my various skills and talents to achieve my day's tasks and goals. As the day progresses, I demonstrate my abilities and gifts in an entertaining, story driven way that could potentially act as a short video portfolio for future employers. The audio work was produced and recorded mainly in Pro Tools while video capture and the project finalisation were completed in Video Vegas.

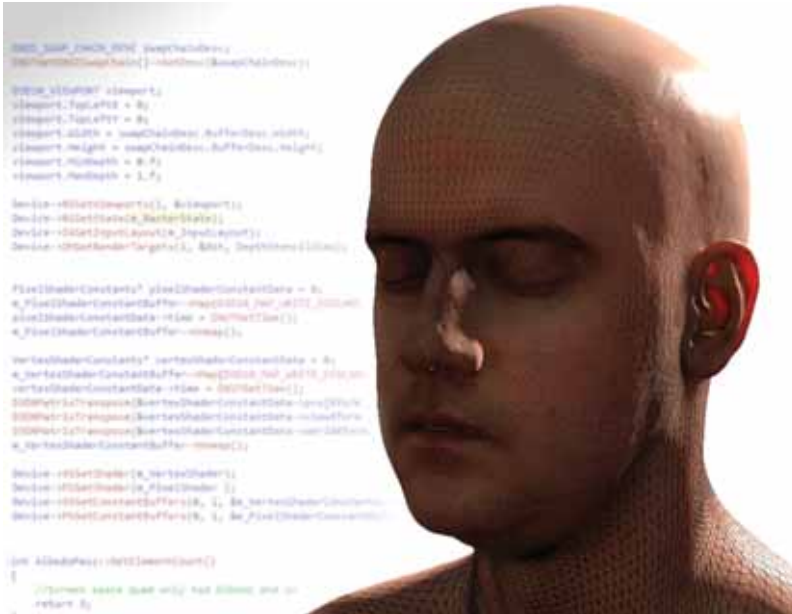




Games & Graphics Programming

The imagination of the game designers must be turned into a reality by the game programmers. These projects require skill, both technical and creative, to enable all manner of ideas to be implemented efficiently and effectively on contemporary hardware. Often these projects focus on prototyping new gameplay features and developing flexible but efficient software architectures, or constructing software technologies to visualise virtual worlds and mimic the beauty and complexity of reality on contemporary hardware. The games programming course is delivered by lecturers with industry experience alongside those with strong research activities in the area of games. These skills are passed onto our graduates who are now working at prestigious games companies around the globe contributing to some of the big games titles. The success we've enjoyed is recognised by Skillset, which has accredited our games courses.

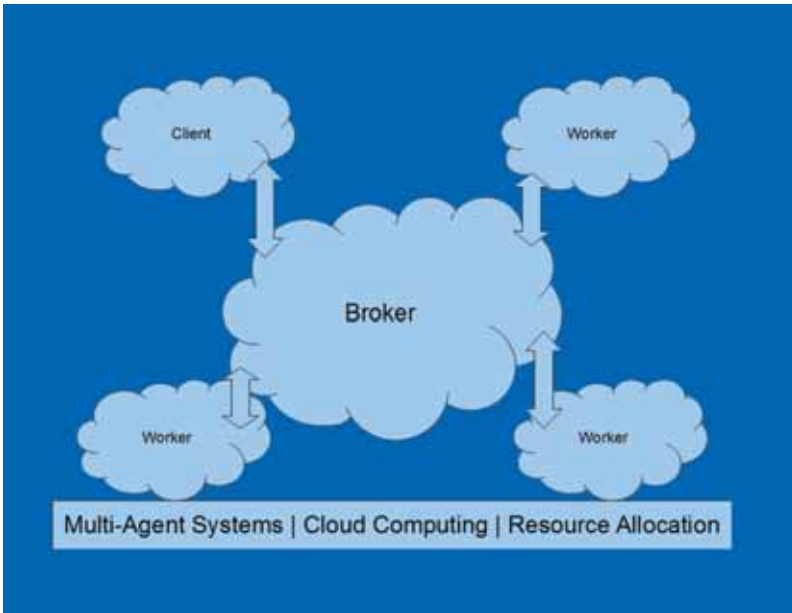
BSc (Hons) Computer Graphics Science



Nicholas Gerard Timmons
Real-time skin and androgenic hair

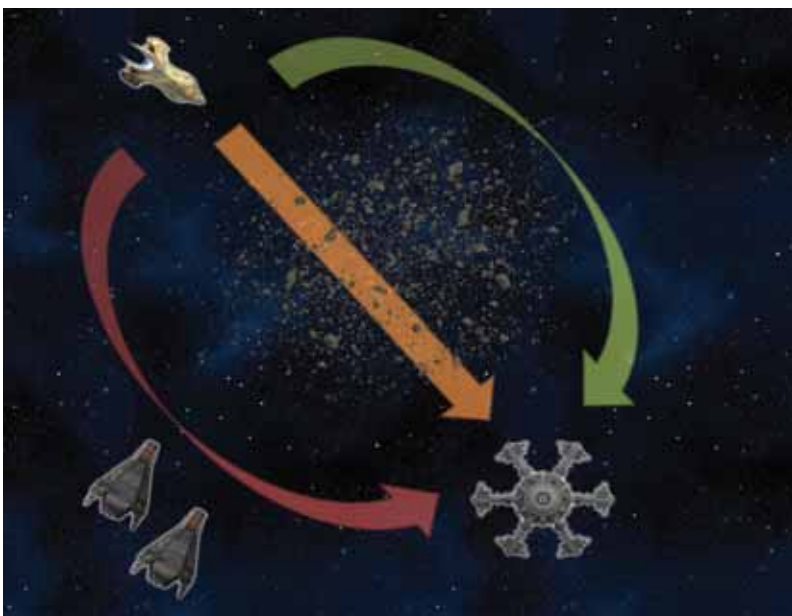
Androgenic hair is the lighter hair that covers a great deal of a person's body and directly affects the appearance of a person through complex light interactions and shadows. While hair and beards have been accurately rendered and fine-tuned in offline rendering, and to a certain extent, good quality approximations, in real-time there is currently no general solution for androgenic hair. Skin on the other hand has been drawn very successfully in both offline and real-time situations. My project combines the current solutions for real-time skin and hair with my proposed model for androgenic hair to improve realism in complex characters, and to challenge myself with a problem that has no proposed solution available, as yet.

BSc (Hons) Computer Games Programming



Alex Shelley
Dynamic resource allocation using a multi-agent system

With programs growing larger in size and requiring more processing power, there is the potential to use idle computers to their full capacity in order to speed up the required time to process data. I have created a system that can be used to split jobs and spread the task among multiple computers. Directed by a single agent, multiple computers can be connected and be either clients, computers that have a task that needs to be processed, or workers, computers that are providing their computing power for another computer. Written in Java and using Boris, a multi-agent system, as a middleware for communication, I have created a simple system which can easily be altered to work for a multitude of systems.



Melvin Burdy
Tactical path-finding

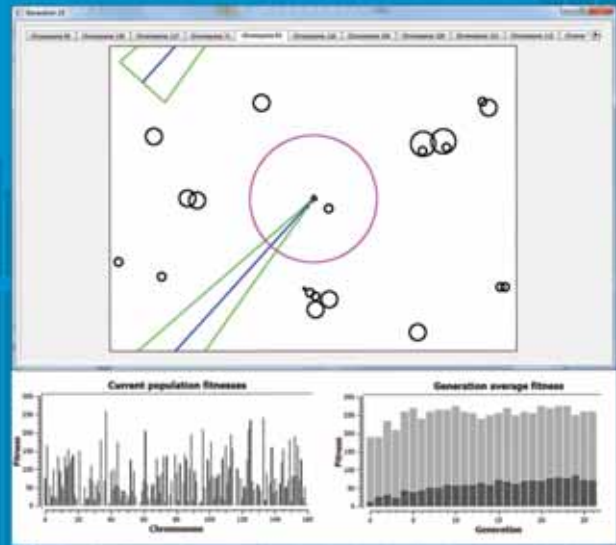
I have designed and developed Artificial Intelligence (AI) for agents in a real-time strategy game prototype. The main focus was on creating a planner, driving multiple agents to goal locations by avoiding other agents and dangers on the map. The tactical path-finding technique allows them to take various parameters into account, such as the toughness of the terrain and the proximity of dangerous enemies or other agents. The weight of these factors is combined, thanks to a set of rules, similar to those used in Expert Systems, leading to an adapted route that could be compared to, and played off against, those preferred by other types of agents. The AI algorithms have been programmed using C# scripts, and then integrated in an environment created with the Unity Engine.



Tom Craven

Can a computer learn to play asteroids?

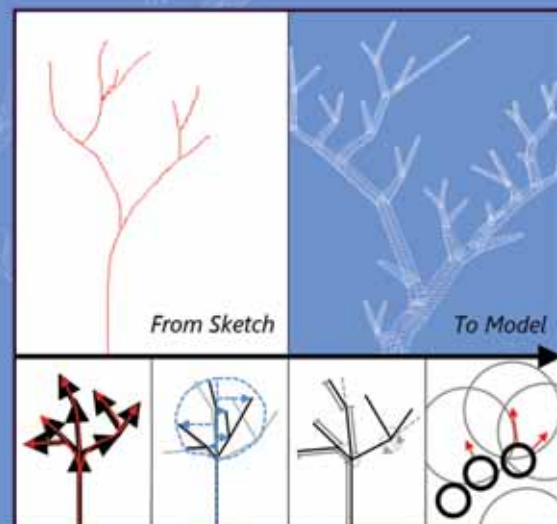
My project is a game of asteroids that the computer learns how to play. Through the use of data gained from the world (sensors) and actions that effect the world (effectors), the program evolves agents that have learnt what to do to get a high score i.e. move, shoot asteroids, don't crash into asteroids etc. There is no external input for the agent to follow; it works it out for itself. To mimic the process of evolution, the program uses a genetic algorithm with a delayed reinforcement learning system. It is written in C++ using Microsoft Visual Studio. It uses OpenMP for multiple threads, SDL for simulating the game, Qt for the user interface and Qwt for pretty graphs.



Ben Andrews

3D tree models from 2D sketches

I created a tool to create 3D tree models from 2D input sketches and integrated them into a game world with variation and clipping against level geometry. The software takes an input sketch of the core branches and a canopy silhouette. This is then processed to create a 2D skeleton. A second perpendicular canopy silhouette is then used to guide the branches' depth distribution. Finally the 3D tree skeleton is analysed to provide a parameter set to recreate the tree and variation and for further detailed growth into the canopy volume. The canopy volume can be clipped against level geometry to create more natural and realistic trees and to prevent trees growing through walls etc. The project involved a wide range of research such as procedural growth, rule-systems, skeleton delineation and vascular studies, procedural mesh modelling, procedural texturing, probability, spatial partitioning, and UI. I used the XNA C# framework for quick prototyping.



Benjamin Scroggins

Pervasive gaming on mobile devices

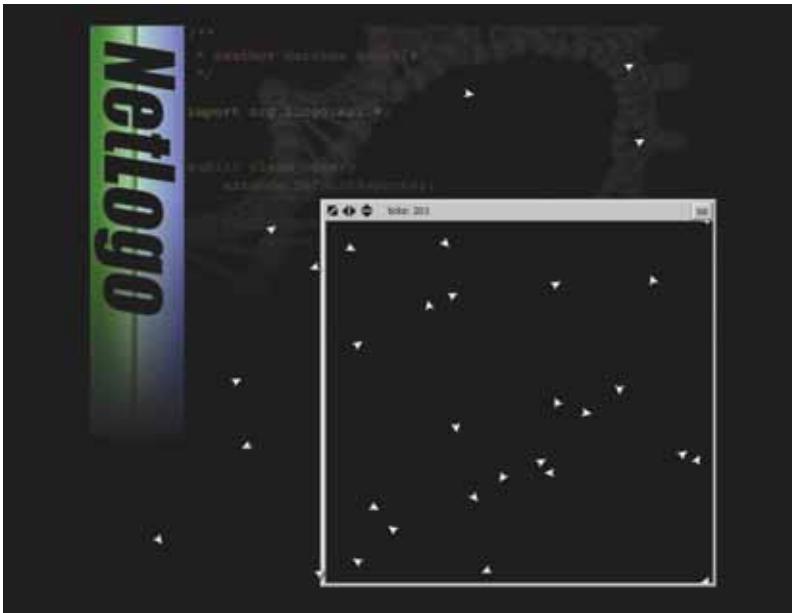
My project explores the potential of pervasive gaming through mobile devices, such as a tablet or phone. My example is a side-scrolling shooter game, set under the sea. Users can be playing this game from anywhere in the world and the gameplay changes in relation to local climate conditions. For example, if it's raining in your area, the jellyfish become tougher; if it is sunny, the sea urchins give double points. The gameplay changes subtly to affect player experience, all depending on the current weather.





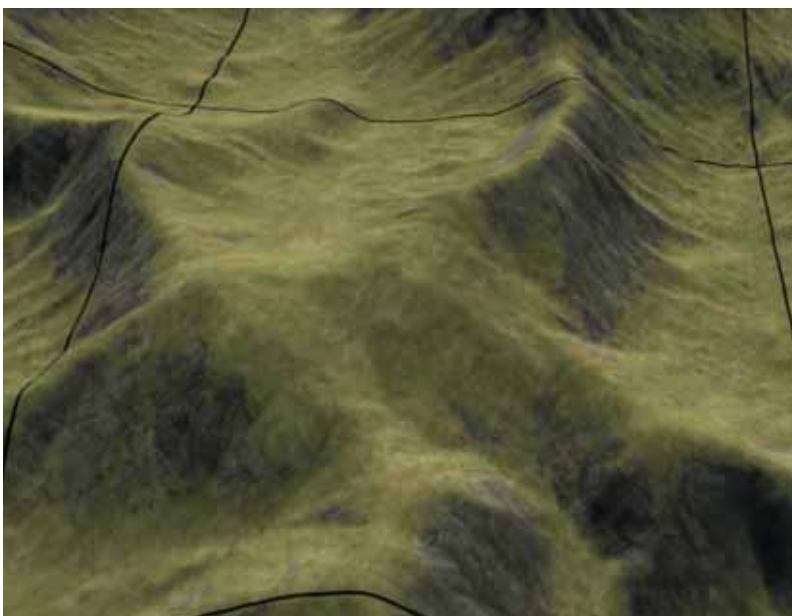
James Robert Whitemore Procedural vegetation generation

I have created an application capable of analysing and growing vegetation over a user defined scene. The system is designed to provide artists with a high level of control, authoring newly generated content and displaying real-time feedback of the procedural processes. This allows for rapid generation of 3D content for real-time environments such as games. The system generates overgrowth using a node based hierarchy to describe vegetation skeletal information. The hierarchical database is processed by several sub-systems to adaptively distribute and grow vegetation over the scene and generate rendering information. Generated content can then be exported out for use within an external renderer. Software was written using Microsoft Visual Studio in C++ and DirectX 10 for content previewing.



Matthew Howells Creating flow through real- time evolutionary learning

I have created a small game environment including a procedurally generated enemy AI and a player. The enemies use genetic algorithms to evolve and learn around the player in real-time, starting with no knowledge of their environment and basic movements. The main idea behind this project was to determine whether or not group behaviour would emerge amongst the AI, and if so how different created species would react together. As the project was focused more on the concepts rather than a working game I developed it using Java extensions for NetLogo. This is a good environment to work with when creating prototypes and testing new ideas. I have also raised the idea of flow before and have tried to incorporate it into my project. Theoretically the constantly evolving AI should provide a challenge for the player but not so much that they do not enjoy the overall experience.



Jordan Jamie Holland TerraSplit – 3D world streaming API

For my final year project I have created a library to aid in the rendering of large, 3D worlds. It does this by splitting the world into tiles; these tiles are then loaded and unloaded seamlessly in the background. The benefit of this is that you do not need to store the entire world in memory at once. This eliminates the need for loading screens and can allow for much larger worlds to be used. The library was created with Microsoft Visual Studio using C++. I used Assimp to help support a variety of different 3D model formats. I also used Microsoft DirectX 10 for rendering the test application.



Lucas Gonzalez Hernanz

Real-time grass simulation

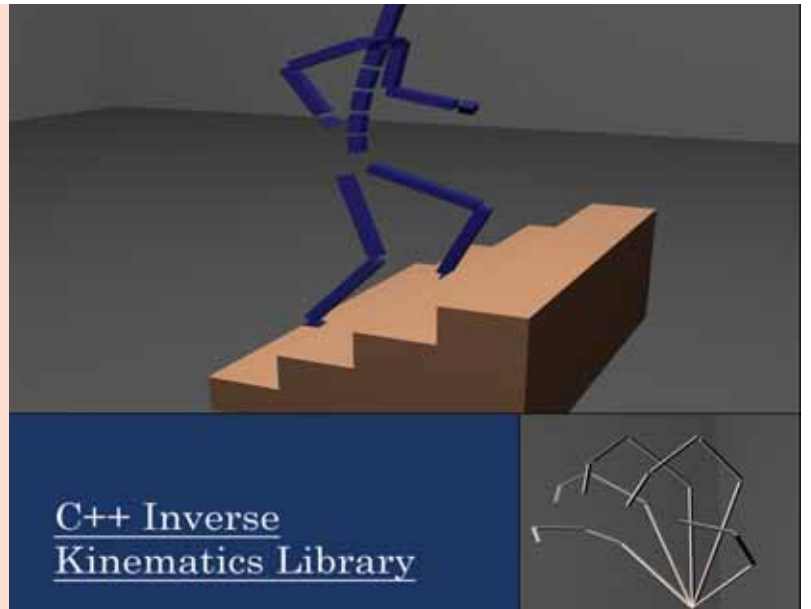
Grass is one of the most common elements of nature and outdoor scenarios. Real-time realistic grass simulation is one of the missing features of current videogames. However, looking at the near future, the new console generation will bring hardware powerful enough to represent the grass in the most common games. I have developed a realistic simulation of grass in several ways including appearance, wind reaction, external object collision and illumination. Also, the grass could be manipulated in various attributes such as aspect, wind reaction, distribution or size to achieve the desired look and behaviour. Several features focusing on efficiency have also been implemented such as level of detail or view frustum culling. Finally, the prototype is designed to be compatible with the most common graphic pipelines. The project was developed in C++ and DirectX using Visual Studio.



Benjamin Pottage

C++ Inverse kinematics library

I have developed a user-friendly library to solve the inverse kinematics problem for a human or custom defined hierarchy of bones. Many games require inverse kinematics to produce skeletal animations at run time as opposed to playing back pre-made animations. A character reaching out to grab an object at a varying height, or correctly positioning their feet on uneven terrain are examples of skeletal configurations and animations that could be implemented using the library. The library incorporates joint limitations so as not to yield unrealistic movements and the design ensures it is independent of any other API or library. The project was written in Microsoft Visual Studio using C++, with an early prototype written in C#.

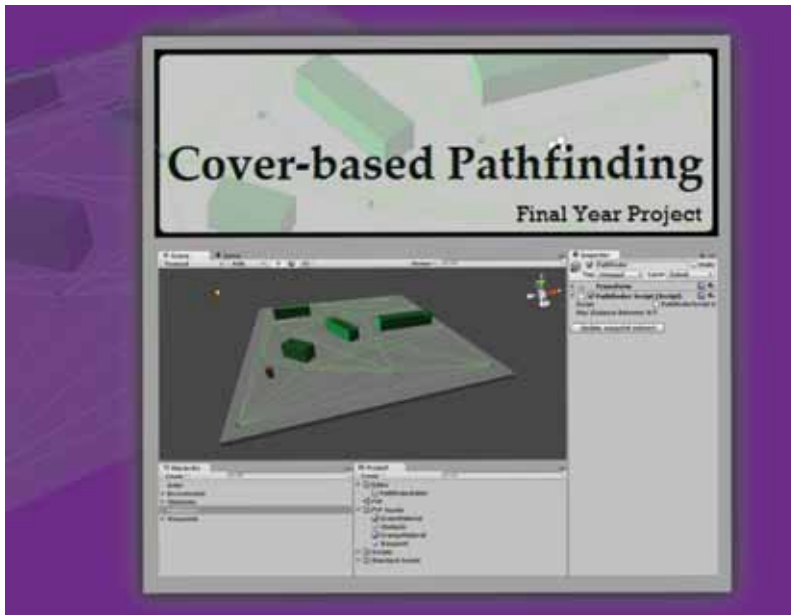


Adam Pinder

Intelody

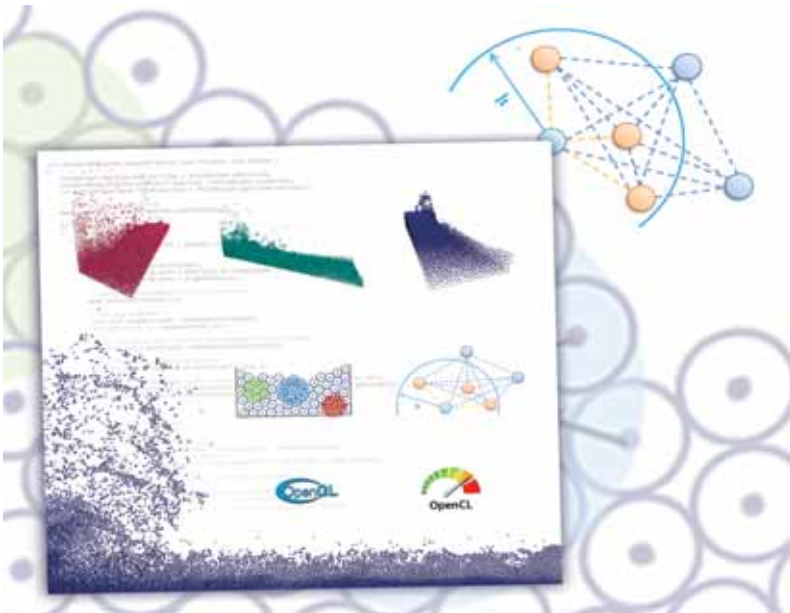
I have developed a computer game focused on teaching and improving a player's ability to play a musical keyboard. The game uses the MIDI file format for handling musical data which allows the player to add any song they wish to play to the application. MIDI files are read by the application and used to generate the level environment for the player. The game scores the player based on their performance, taking into account notes they hit and also how accurately they hit them. As the player competes against them self, or friends' scores, they are practising through repetition and improving their ability. The game was developed in C++ using the Simple DirectMedia Layer library for the game graphics and the low level multimedia API in Windows for MIDI control. All programming was written using the Visual Studio IDE.





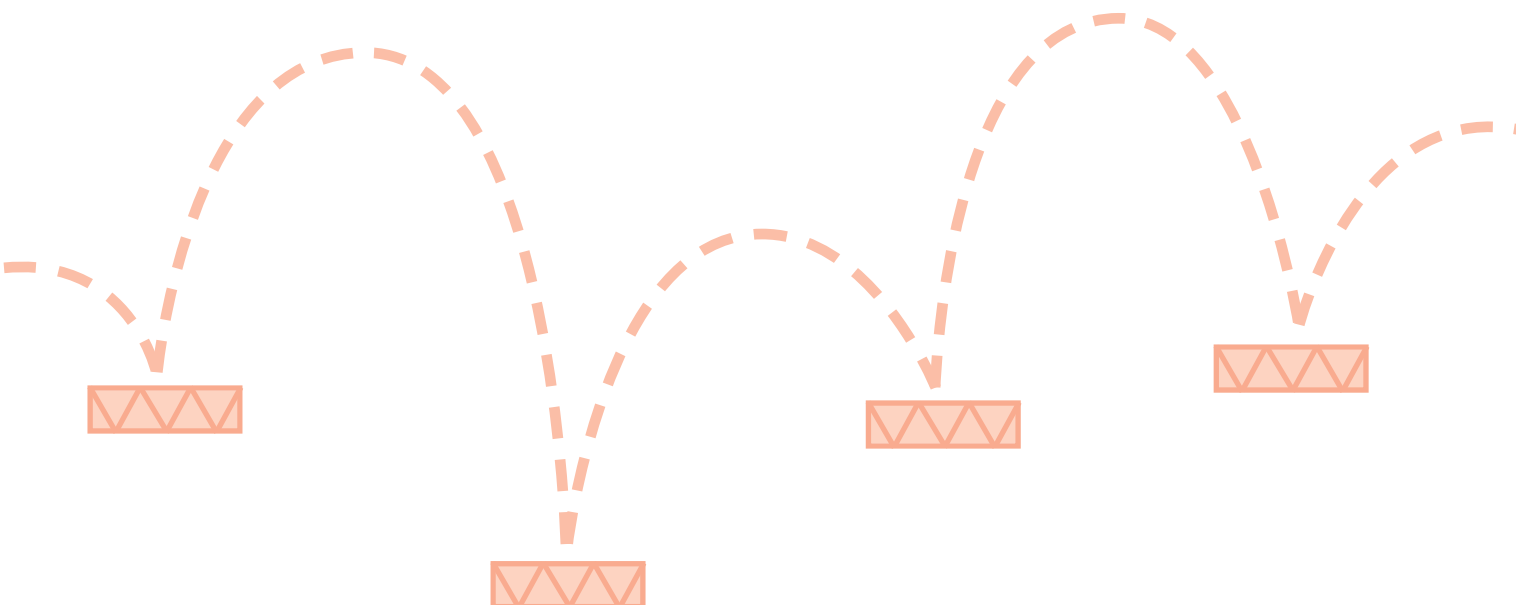
**Charlotte Marie
Lacombe Bar
Cover-based path-finding**

Most of today's FPS-like games now implement a cover system accessible for both the AI and player. In order for the AI to look as intelligent and human-like as possible, it should take full advantage of the given cover system when navigating the game environment. For my project, I researched different types of environment representation and path-finding algorithms as well as their implementations in order to develop a path-finding algorithm derived from A Star that allows AI to take into account cover points. I demonstrated this on the 3D game engine Unity by creating a framework for the user to modify the game environment and path-finding settings in the editor, and demonstrate it in the game application.



**Eamon Dodds
Real-time fluid simulation
and Rendering**

I have created a software demonstration showing real-time fluid simulation and rendering. The demonstration application shows real-time fluid simulations represented with visually appealing rendering methods. The implementation takes advantage of the power of modern graphics hardware for both simulation and rendering of the resultant fluid. The demonstrations were created in order to explore the suitability of applying fluid simulation techniques to real-time interactive applications such as games and other entertainment media. The application is developed in C++. Fluid rendering is implemented with OpenGL and the simulation is accelerated on the GPU through the use of OpenCL.





Mark Doorbar

Real-time tessellation in DirectX 11

I investigated the performance difference between using, and not using, real-time hardware tessellation in DirectX 11. I have written two demos, one with, and one without, tessellation. I profiled both and compared the results in an attempt to test my hypothesis, that it will be more efficient to load and render a lower poly 3D model and tessellate it than to load and render a higher poly model of the same quality. The two demos are written in C++ using Visual Studio, DirectX 11 and the Open Asset Import Library to load the 3D models.

Real-Time Hardware Tessellation in DirectX 11



2 Triangles passed to the GPU.
No Tessellation occurs



Same 2 triangles passed to the GPU.
Tessellation occurs on the GPU.

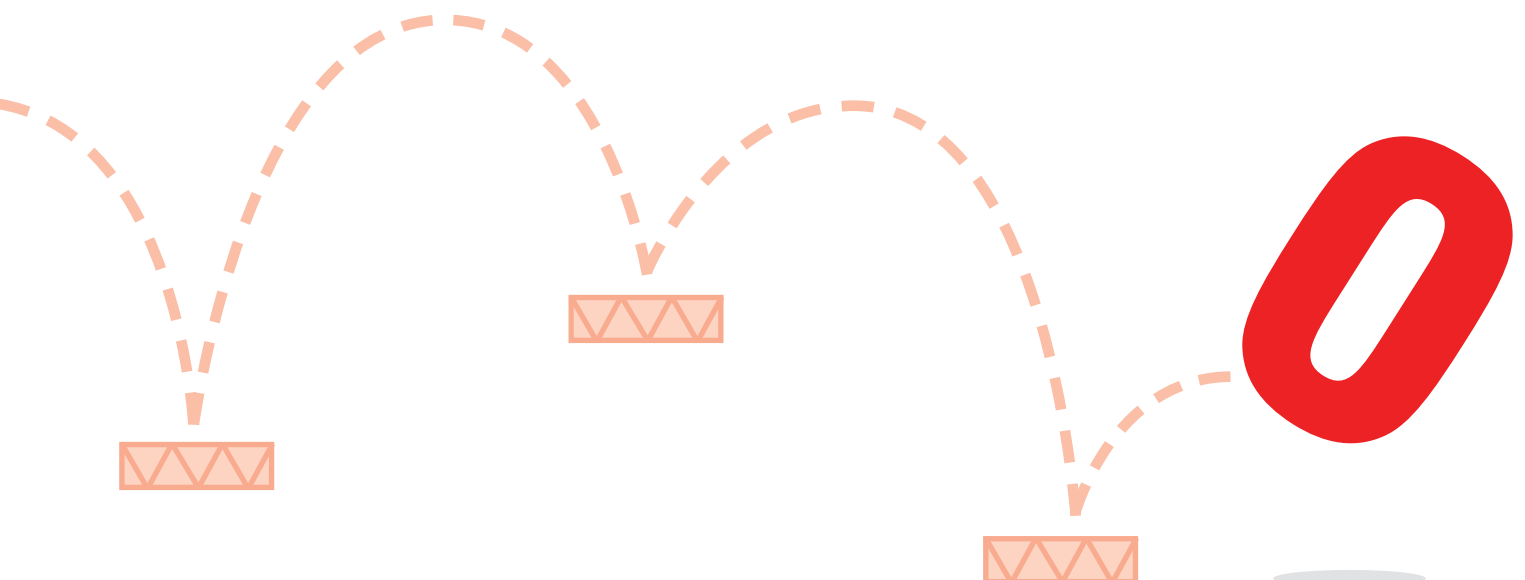
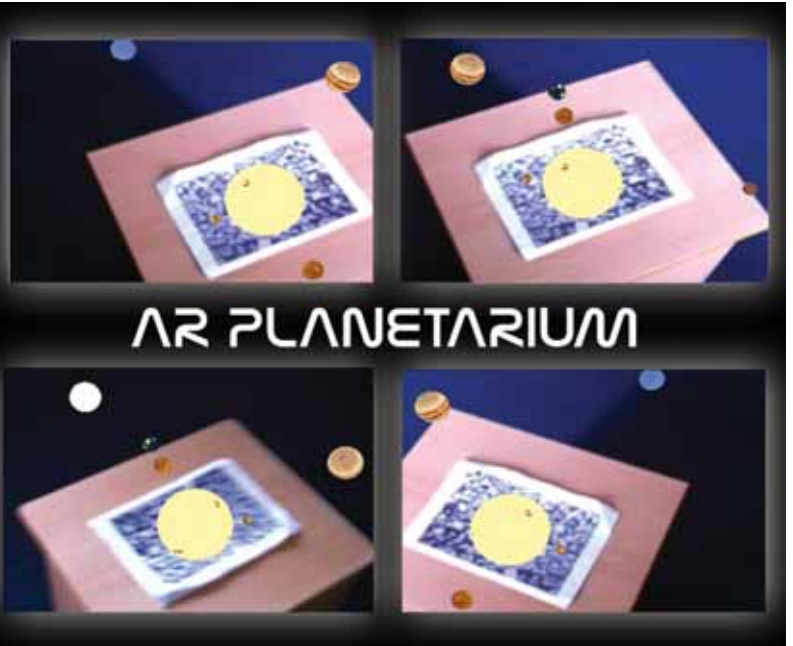
Same amount of memory is passed to the GPU,
but the geometry is now more detailed.



Rex Hancox

ARPlanetarium – augmented reality planetarium

I have developed an application that uses augmented reality (AR) and allows the user to explore the solar system in a new and interesting way. AR tracking is used to overlay and integrate a large computer-generated planetarium into a real-time video feed. The project was developed using a hybrid of marker and motion sensor (gyroscope, compass and accelerometer) AR. The app uses the camera and motion sensors included in modern mobile devices. The project tracks a real-world marker to calibrate a mobile device and generate the initial augmented reality output, which is rendered over a real-world video stream. The marker also generates the initial position data that allows the planetarium to blend in seamlessly with the world. Should the app lose track of the marker it can fall back on the motion data sensors on the mobile device to estimate further positional data, which allows the planetarium to run even without the camera directly facing the marker. This project was developed for Apple's iOS platform and uses the Qualcomm Vuforia SDK for visual AR tracking, and the iOS SDK's CoreMotion API, for motion-based tracking. The app was developed with Apple Xcode 4.3 using Objective C and C++.



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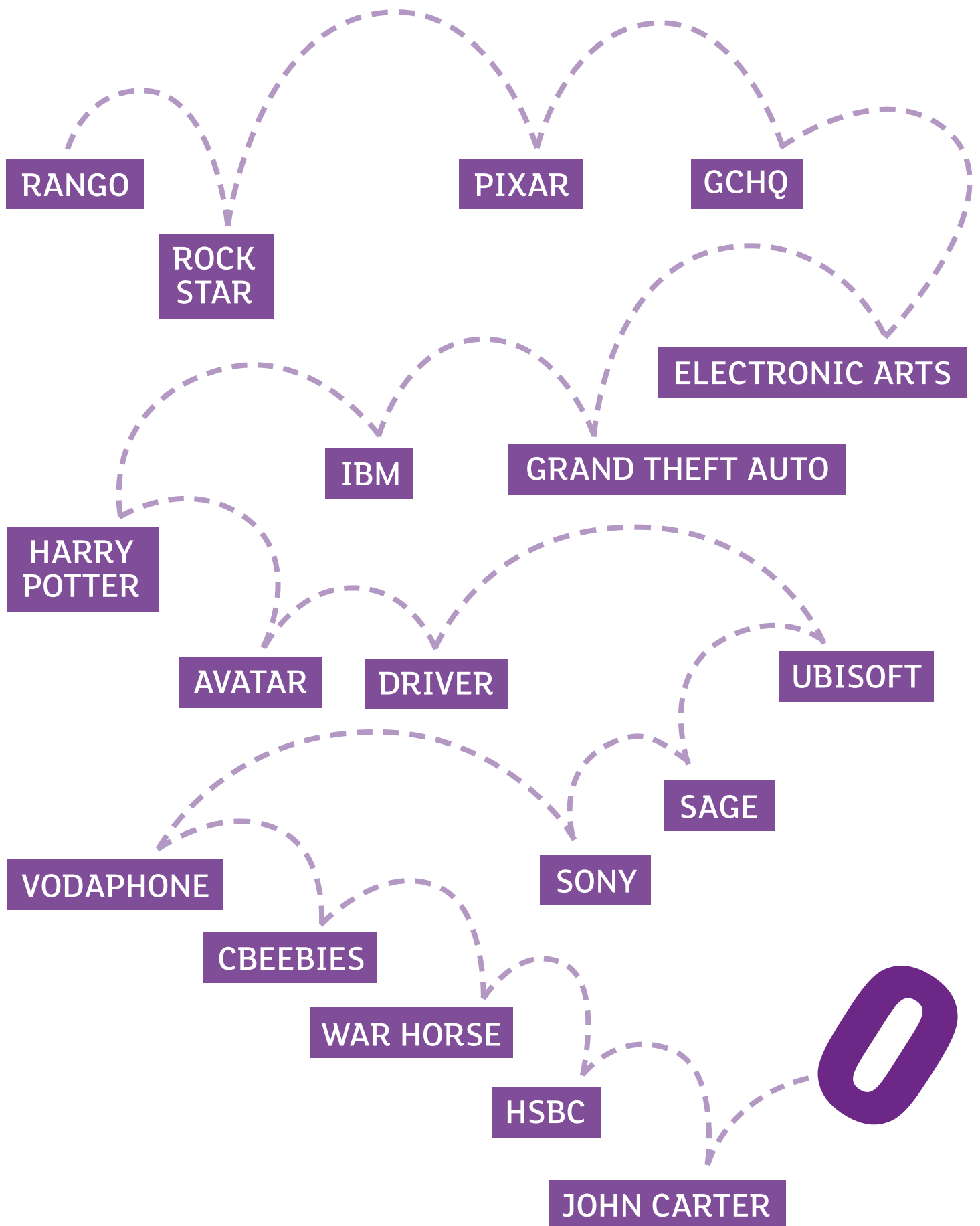
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- Computer Games Programming

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Acknowledgements

ExpoTees is the result of the hard work and dedication of many colleagues and supporters, and the ExpoTees team would like to thank everyone who has contributed to the success of ExpoTees 2012. We would particularly like to give our heartfelt thanks to our sponsors of the event and of the ExpoTees Awards. We are very grateful for the support and dedication given by the School of Computing management team, the Academic Enterprise team, staff at our Darlington Campus and the Department of Marketing & Student Recruitment.

Every final-year undergraduate student is guided through their project with the support of a project supervisor. We would like to express our gratitude to Dave Eagle, the projects co-ordinator, all the project supervisors who make ExpoTees possible, and to the final-year students who make the hard work worthwhile.

For any questions about ExpoTees please contact Joanne Noble at j.e.noble@tees.ac.uk or on 01642 342639.

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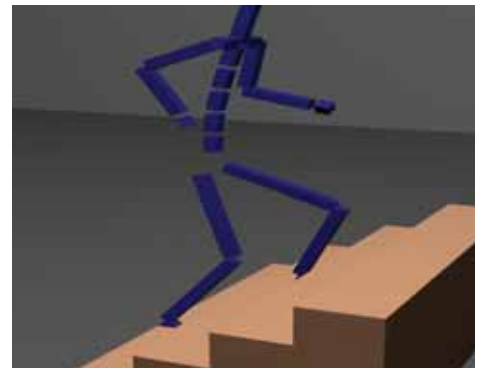
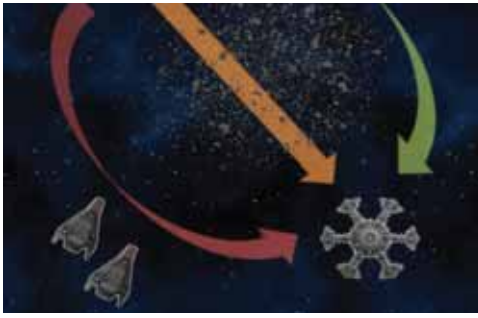


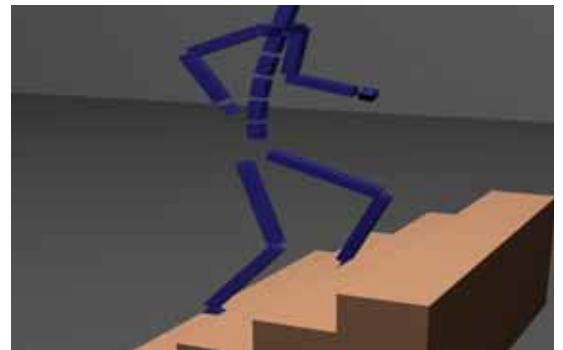
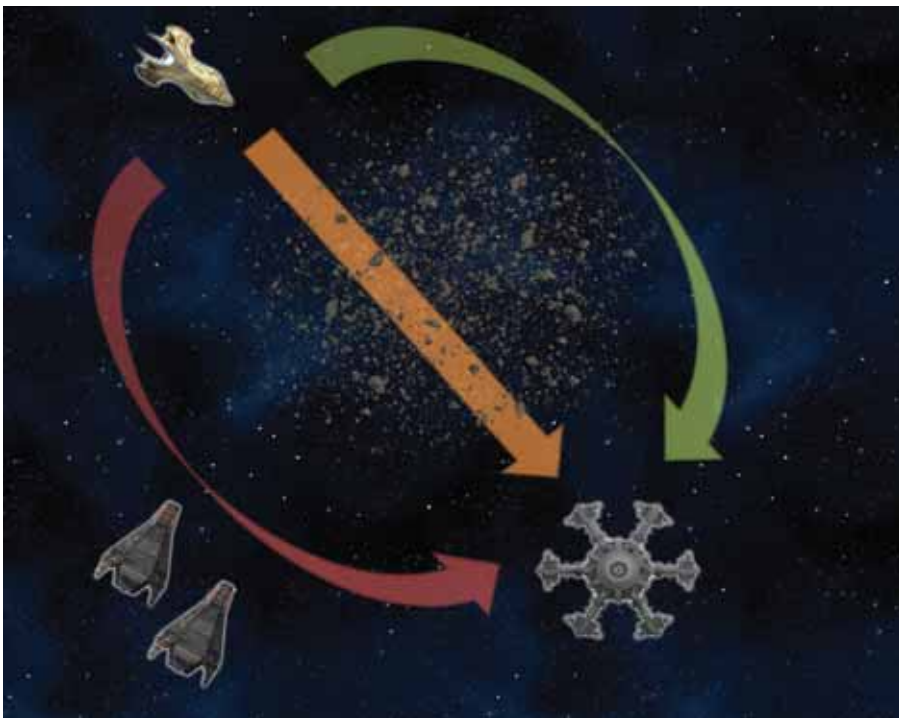
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