University of Lancashire

CO3008 Honours Degree Project

Overview and Ideation

Dr Brendan Cassidy

Where opportunity creates success

This Session…

- Outline the module structure, aims and learning outcomes
- Outline module deliverables
- Explore project ideas and what makes a ‘good’ project
- Look at some past project ideas

- **By the end of the week you should be able to:**
  - Give an overview of overall structure and deliverables of the module
  - Identify areas of interest to focus your project
  - Follow guidance to generate ideas for a project
    - Identify ‘course relevant’ problems that your project could seek to address

Survey

- Complete the following survey to notify me of an area of interest for your project
  - https://forms.office.com/e/gvxyPBLYE4
  - Linked on Blackboard
- This should be complete by **23:59 on Wednesday 1st Oct**
- This will help me allocate you supervisors
  - All students should have a supervisor by early week 2
- If you don't know or don't complete the form I will allocate as best I can according to course
  - If you don't complete the form by Oct 1st you may receive a random available supervisor

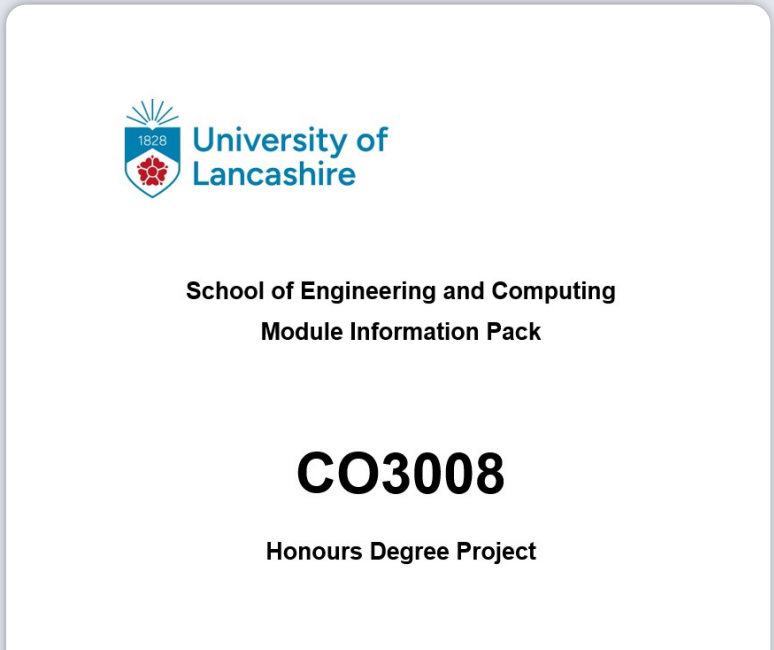
Supervisor Role

- It is **NOT** the supervisor's responsibility to provide technical support for your project
  - YOUR responsibility to select the right tools for the job, justify choices and use YOUR skills to contribute a practical solution to the stated problem
- They will be able to advise on expectations for written deliverables for your chosen project (they will be marking it)
- They may ask you to justify the choices you have made in your project (and reflect that in the report)
  - Did you consider any alternatives?
- They will try to help you stay on track with the pacing of work via the formative deliverables
- They may highlight or ask you about any potential ethical/safety concerns they have about the project
  - They will provide ethical clearance for your project at the proposal stage

Module Details

Module Information Pack / Project Handbook

- There is a project handbook available on Blackboard
- This handbook expands on the assignment brief and gives you tips and additional information about the module and completing your final year project
- I advise all of you to read it.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School of Engineering and Computing

Module Information Pack

CO3008

Honours Degree Project

Module Aims

- To enable students to act with confidence and competence in a substantial problem-solving activity.
- To provide an opportunity to practise creativity, time management, project planning, control and reflection
- To develop the student's skills of critically evaluating their own work and the work of others.
- To develop the student's communication skills.
- To provide an opportunity for students to research and analyse relevant literature and produce an academic report on their investigations.
- To provide an opportunity for the consideration of enterprise, ethics, social, enterprise and equality, diversity and inclusion issues.

Learning Outcomes

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- Select and apply appropriate techniques to analyse and tackle a complex problem
- Identify ethical and EDI issues and propose appropriate solutions.
- Consider the applicable commercial development of the project idea and identify what further work / skills would be needed in order to realise this
- Produce a substantial, complex piece of work within a specified timescale based on an agreed specification.
- Apply project management techniques.
- Reflect on development and critically evaluate performance and the tools and techniques used
- Investigate relevant literature and write a report that analyses the material found.
- Communicate complex information effectively.

Core Deliverables

- Artefact
  - Two formative iterations submitted throughout the year
  - One final summative artefact submission (early March)

- Report
  - Split into 4 formal submissions throughout the year

Last Years Report Structure (subject to review)

- Proposal
- Report
  - Introduction
  - State of the Art
  - Methodology
  - Design
  - Implementation
  - Evaluation
  - Conclusions
- A template will be provided for the report
- You will also be provided with a ‘project handbook’

Deliverable 1

Deliverable 2

Deliverable 3 (includes implementation)

Deliverable 4 (complete report)

Submission Process

- All submissions are done via Blackboard
- Templates are Provided for the Proposal and the Report
- You add to, and resubmit, your report cumulatively
- You should add the required Deliverables to the report template and resubmit as you go
  - D2 will contain Intro, State of the Art, Methodology
  - D3 will contain Intro, State of the Art, Methodology, Design, Implementation
  - D4 will contain Intro, State of the Art, Methodology, Design, Implementation, Evaluation, Conclusions
- Each deliverable will add more content to your report with D4 comprising your full report
- Each deliverable will only be marked once and you should not make retrospective changes to the report in subsequent deliverables
  - This underscores the importance of early planning
  - You will need to explain significant changes to your project in the evaluation

Assessment Milestones

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Academic Calendar

Project Out D1,2,3,4,5	2	3	D1 IN Prop	Ach Week	5	6	7	D2 IN (Intro, SoA, Meth)	9	10	Xmas Break	Xmas Break	Xmas Break	S1 Exams	Min Viable Product	12	13	14	Ach Week	Show & Tell	16	D3 IN D & I	18	D4 IN Eval	Easter Break	Easter Break	D5 IN Poster	Semester 2 Exams

Component	Deadline	Weighting	Words
Proposal	Fri 24th Oct 2025	10%	1000
Introduction, State of the Art, Methodology	Fri 28th Nov 2025	15%	4000
Minimum Viable Product	w/b 19th Jan 2026	Formative	Demo to Supervisor
Show and Tell	w/b 23rd Feb 2026	Formative	Demo to Supervisor
Design and Implementation (including artefact)	Fri 13th Mar 2026	45%	3000
Evaluation and Conclusions	Fri 27st Mar 2026	20%	2500
Poster / Viva Exam	w/b 13th Apr 2026	10%	A1 Poster

You must attend the poster demo / viva (pass/fail) requirement

Professional Body Requirements

- Projects must include undertaking of practical work of some sort using computing/IT technology.
  - Exact requirements will vary by course. If you are unsure discuss your idea with your course lead
    - This is most frequently achieved by the creation of an artefact as the focus for covering all or part of an implementation lifecycle
- **The project must give students the opportunity to demonstrate:**
  - your ability to apply practical and analytical skills present in the programme as a whole
  - innovation and/or creativity
  - synthesis of information, ideas, and practices to provide a quality ***solution*** together with an evaluation of that solution
  - that their project meets a real need in a wider context
  - the ability to self-manage a significant piece of work
  - critical self-evaluation of the process

Professional Body Requirements (Report)

- Elucidation of the problem and the objectives of the project
- An in-depth investigation of the context and literature, and where appropriate, other similar products
- Where appropriate, a clear description of the stages of the life cycle undertaken
- Where appropriate, a description of how verification validation were applied at these stages
- Where appropriate, a description of the use of tools to support the development process
- A critical appraisal of the project, indicating the rationale for any design/implementation decisions, lessons learnt during the course of the project, and evaluation (with hindsight) of the project outcome and the process of its production (including a review of the plan and any deviations from it)
- A description of any research hypothesis (if appropriate)
- References
- Projects must be passed without compensation.

Proposal (Due Friday 24th October)

- Problem Statement - A brief outline of the problem your project aims to address.
- Ethical Analysis – a discussion of the potential ethical issues surrounding the problem domain and any considerations you will need to make to ensure your project is completed in line with the ethical standards expected of a computing professional.
- Risk Assessment – An investigation into the potential risks of the project, contingencies and how risks can be mitigated
- Health & Safety Assessment – An investigation into the potential risks both to yourself, the public and users of your artefact.
- Time & Resources Plan – How you present your plan for managing your time and project resources is up to you. Your plan should detail how you intend to spend the time and resources on the project to work towards solving the problem outlined in your problem statement.

Subject Areas

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- Projects can typically sit in one or more subject areas, E.g:
  - AI / Data Science
  - General OO Development
  - Web Development
  - Embedded Systems
  - Games (commercial engines)
  - Games (C++)
  - Graphics
  - VR/AR/XT
  - Mobile (iOS/Android)
  - Distributed Systems / Cloud
  - Cyber Security
  - General Networking
  - General Development
  - Databases

Some of you may have an idea of what subject/tools you want to work within already, and have reverse engineered a problem domain from there…

Different staff will typically align with different subject areas based on their expertise/interests

Ideation

Ideation

- Choosing a project can be hard

- A good project solves a problem
  - You will be asked to provide a ‘problem statement’ in your first deliverable
  - There are lots of problems to solve

- Think of some problems that might exist in your life
  - Can you build a project around that (it must be related to your course)

- Your supervisor will be able to help you define the feasibility of your project

Identifying ‘Problems’

- Could be ‘big’ global societal problems
  - Climate Change, Crime
- Could be economic problems
  - Cost of living / inflation / unemployment
- Could be related to a particular user group
  - Disabled, Elderly, Students, Parents
- Could be related to a particular special interest group
  - Sports, Hobbies, Pets, Music
- Could be related to a particular industry
  - Aerospace, Retail, Hospitality, Education, Travel, Healthcare, IT

Ideas Related to Identified Problem Areas

- Climate Change
  - Energy Monitoring App
- Crime
  - Security Notification System
- Cost of Living
  - Budget Monitor/Calculator
- User Group
  - Alzheimer’s Support System for Elderly
- Special Interest Group
  - Tennis Training/Tournament Management Software
  - Guitar Effects App
  - Inventory Management System (e.g. Vinyl Collection)
- Industry
  - CO3008 Module Management System (higher education)

Adding Technical Challenge

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- You will score better on your project if it poses a larger technical challenge
  - There is normally more than one way to solve a problem
  - You can probably work up from a ‘minimum viable product’ to a more complex artefact by adding scope/features
  - Energy Monitoring – could integrate with IoT
  - Security could use facial recognition and motion tracking
  - Budgeting app could allow barcode scanning for purchases
  - Alzheimer's support could incorporate fall detection, tracking (wearables?)
  - Tennis training could incorporate motion detection (serve speed estimation)
  - Inventory management could use computer vision to add items to inventory
  - Module Management System could integrate with multiple systems (e.g. calendars)

Past Project Examples

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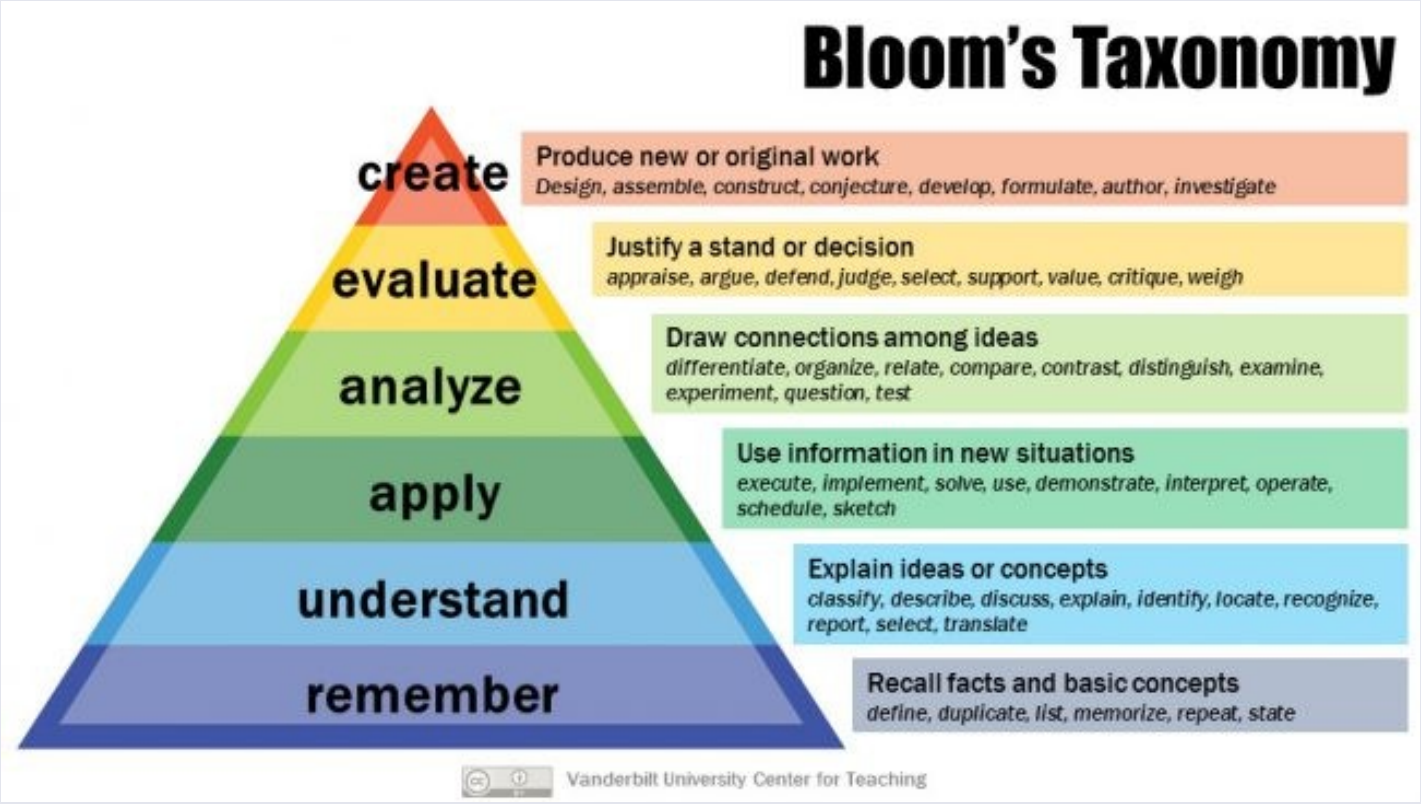
- Parcel Delivery Detection System
- Traffic Sign Recognition System for Visually Impaired
- Mental Health Tracking Software
- Automatic Package Installer
- Personal Security Manager
- Honeypot
- Virtual Space to Harness Creativity
- Water Simulation
- Procedurally Generated Dungeon Generator
- VR Collaboration Tool
- Autonomous Selfie Drone
- Secure Doctor/Patient Communication System
- Develop and Configure a School Network

Bloom's Taxonomy



Bloom’s Taxonomy

- Helps explain the process of learning
- Before you can ***understand*** a concept, you must ***remember*** it.
- To ***apply*** a concept you must first ***understand*** it.
- In order to ***evaluate*** a process, you must have ***analyzed*** it.
- To ***create*** an accurate conclusion, you must have completed a thorough ***evaluation***.

Past Projects

Past Projects

ULCNWT100	Remote lab deployment
VSSWEN100	Movie application
ULCYSE100	Honeypot
ULCYSE100	Personal security manager
ULCNWT100	Network testing
ULCNWT100	Virtual desktop infrastructure
ULCOFS100	Forensic Windows upgrade
ULCOSC300	AI diamond appraiser tool
VSCOGD100	VR archery simulator
ULCNWT100	OSI animation
VSCOGD100	VR magical simulation
VSCOMP100	Chat application
VSCOGD102	Multi-genre video game showcase
VSCOGD100	Adaptive generation using generative grammars
ULCNWT100	Secure health fitness app

VSCOGD100	3D platformer game
HBSWEN100	Machine learning financial markets
HBSWEN100	Board game AI
HBSWEN100	File sorting system
HBSWEN100	Radar interface testing tool
VSCOGD100	Facial recognition for safety
VSCOGD100	Procedural content generation
ULCYSE100	Educational cyber security app
VSSWEN100	Fundamental analysis tool
ULCNWT100	Operating system security system
VSCOMP100	Realtime monitoring solution
VSCOMP100	Crypto tracker
VSSWEN100	Facial recognition system
VSCOGD102	Vehicle interaction

Past Projects

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HBSWEN101	Automatic Test File Updater
HBSWEN101	(BAE) System integration of microserve REST APIs
ULCNWT100	DNS based file system
ULCYSE100	Malware analysis
ULCNWT100	Sport event management system
HBSWEN101	(BAE) Social media scraper
VSCOGD102	Dungeon crawler RPG
VSCOGD102	Realistic water with object interactions
ULCYSE300	Natural language processing to detect spam emails
VSCOMP100	Car dealershp DBMS
ULCYSE100	Analysis of user biometrics using keylogging
VSCOMP100	Raspberry Pi doorbell using facial recognition
VSCOGD302	Emergency services management game
VSCOMP100	Football fundraiser application

VSSWEN100	Student organisation app
VSCOGD100	Graphical physics and collision engine
VSCOGD100	Card based game using AI
VSCOMP100	Food shopping/cooking app
VSSWEN100	(BAE) AI prediction of greyhound racing results
VSCOGD100	Procedural generation of terrain
VSSWEN100	Web application for League of Legends
ULCOFS100	Discord investigation on Windows
VSSWEN100	Full stack marketplace application
VSSWEN100	Motion capture and synthesis with CV and robotics
VSSWEN100	Learning management system
VSCOMP100	Fitness and progression tracking app
VSCOMP300	Doctor patient communication system
VSCOGD100	3D spooky dungeon game
ULCYSE100	Password strength application

Past Projects

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ULCOFS100	Something to do with crytpo miner malware
HBSWEN100	Typhoon mission data generator
VSCOGD100	Zombie shooter procedural level
VSCOMP100	Human attraction analysis tool
ULCOSC100	Creative football database
VSSWEN100	2D role playing game
VSCOMP100	Referral Work Just Needs Sign Off
ULCNSE101	Develop a school network
VSCOMP100	Beauty studio reservation system
ULCOFS100	Healthcare and fitness app
ULCNWT100	Develop a MANET

ULCOSC100	Text messenger
ULCYSE100	Encryption application
ULCOSC100	NO PROPOSAL SUBMISSION
VSSWEN100	Tabletop note taking app
ULCOSC100	Remote access application
ULCNWT100	Virtual desktop infrastructure
ULCYSE100	Twitter scraper

Summary

- You need to start your project early!
  - First deliverable just after reflection week
  - Split into formal submission points throughout the year to help
  - Your final report is an aggregate of all these submissions
- You need to complete my survey by Weds Weds Oct 1st 23:59
  - Don’t forget! If you already know, do it now.
  - https://forms.office.com/e/gvxyPBLYE4
- You should have supervisors by end of week 1
- Your project should aim to solve a problem
  - You will be asked to define the problem in your first deliverable (proposal)

The Effects of Video Game Genre on Memory, Attention & Ability to switch tasks.

By Shannon Barrett – PhD Student

Dates: 13th October – 12th December 2025

About this Study

- This study will investigate the effects of games of different genres on memory, attention and the ability to switch tasks **over a 2-month period**.
- Participants will attend **one session a week, for 8 weeks**, where they will complete cognitive tests and play games. Most of the sessions will last **90 minutes**, but the first and last will be closer to 30.
- The games that are included in this study are**: Call of Duty: Black Ops III (FPS), Fallout 2 (RPG), StarCraft II (RTS),** and **Portal 2 (Puzzle)**.
- To be included in this study you must be **a student**, **regularly play video games**, and not have any impairments or disorders which may affect your memory, attention, ability to switch tasks or use a mouse and keyboard.
- This study will be held on **Wednesdays, Thursdays** and **Fridays** in **CM018,** Computing & Technology Building, between the **13th October** and **12th December** 2025.

Structure of the Study

Below are the tasks which you will complete during each session of the study.

Sessions	Gameplay	Cognitive Tasks	Questionnaire	Total Time
Week 1	None	Yes	No	30 mins
Week 2 - 7	1 hour	Yes	Yes	90 mins
Week 8	None	Yes	No	30 mins

By partaking in this study, you will:

- **Contribute to our understanding** of the effects of gaming on the brains of regular players.
- Your results may be **published (anonymously) as part of peer-reviewed research**.
- You will also get to **engage with other participants** and socialize with your peers.
- You'll have the chance to join a study, **gaining insight into research design** and what it's like to be a participant which is **beneficial if you conduct your own research** studies later.

Get Involved

If you are interested or have questions, please feel free to contact me at: **sbarrett6@lancashire.ac.uk** either by Email or on Teams.

You can also find me in the Postgraduate Research Room – CM211.

Scan the QR code to access my website where you can find more details about the study, as well as the **Participant Information Sheet** and **Consent Form.**

To participate you will need to complete both forms, and a survey available online at: https://forms.office.com/e/NpHpSxSyxn

Wednesdays, Thursdays and **Fridays** in **CM018, 13th October – 12th December.**

The End

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