

# **CM1301: Principles, Tools, and Techniques for Secure Software Engineering**

Dr Daniel J. Finnegan

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# Introduction

# Greetings

Dr Daniel J. Finnegan's homepage

## About me

I'm a Senior Lecturer (Associate Professor) in the School of Computer Science & Informatics at Cardiff University working on human computer interaction (HCI) and multimodality perception in virtual and mixed reality with the Human Centred Computing group. If you are interested in doing a PhD, MPhil, or other postgraduate research degree with me, please read this page.

I work on many different projects, and you can see my [published work here](#). I earned my EngD in Digital Media from Leeds, and before that I received my BSc in Computer Science from UCD. I'm always happy to meet new people, and am open to collaboration opportunities on projects involving HCI, perception, cognition, virtual reality, machine learning, software engineering, game design & development, and more generally the cultural impact of games. I'm co-director of [Echo Systems](#), a community interest company (not-for-profit) developing games and experiences with an emphasis on social change. I founded with [Daniela De Angelis](#) and [Leo Scott](#). We've always looking for new clients keen on exploring how games can be used to engage audiences beyond entertainment. You can contact me by sending me a message on [social media channels](#) by using the links to the right. We can chat anytime over on [Twitter](#).

Here's a video reel of recent projects I've supervised, but which you may find interesting/useful to learn more about the kinds of things I do.



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Look me up on the web!

[http://daniel.finnegan.org](#)

[01920 5053 1950 \(ext 2062\)](#)

Let's be social

[Twitter](#) [LinkedIn](#) [Facebook](#) [YouTube](#)

Recent projects

The good thing about computer programs is they never anticipate. The bad thing about anticipatory programs is they're never anticipated.

- EngD in virtual reality
- Office hours: See LC
- For details, best visit my site: [ps2fino.github.io](https://ps2fino.github.io)
- When contacting me via email, you **SHOULD** prepend the email subject line with "CM1301 Student Query:" otherwise the likelihood of receiving a prompt response from me is in the single digits
- Office Address: Abacws Building, Room 2.60
- If you're ill/suspect you're ill, please do not come to my office; meet online instead. I typically take no more than 3 students in my office at a time; you may have to wait.

**Team**



Dr Nervo Verdezoto Dias



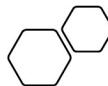
Ms Sunbul Ahmed



Dr Carolina Fuentes Toro



Dr Yulia Cherdentseva



- Autumn W6 to Autumn W 12 -> Dr Verdezoto
- Autumn W12 to Spring W4 -> Me
- Spring W4 -> Spring W10 -< Drs Fuentes Toro & Cherdentseva

## **Topics we'll cover**

- Requirements Engineering
  - User Stories/Scenarios
  - Interviews
  - Feature descriptions
- Object Oriented Programming
  - Relationships
  - UML diagrams
  - Modularity
- Software Development
  - Scrum, Kanban
  - Reporting (!)
  - Version Control
- Security

Language agnostic → C/C++, R, Python, Java, Javascript etc. . .



## What this module is *not* about

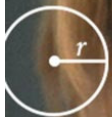
- This is not a python programming module
- This is not about writing hundreds of lines of code
- This is not about python

## In Short



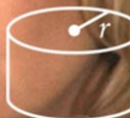
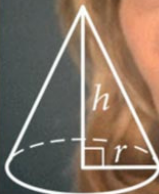
## **Coursework**

**THIS IS A COMPUTER SCIENCE MODULE**



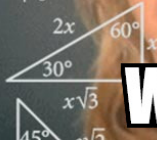
$$A = \pi r^2$$

$$C = 2\pi r$$



$$V = \pi r^2 h$$

	30°	45°	60°
sin	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
tan	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$



$$\int \sin x dx = -\cos x + C$$

$$\int \frac{dx}{\cos^2 x} = \tan x + C$$

$$\int \tan x dx = -\ln|\cos x| + C$$

$$\int \frac{dx}{\sin x} = \ln\left|\tan \frac{x}{2}\right| + C$$



$$ax^2 + bx + c = 0$$

$$x^2 + \frac{b}{a}x + \frac{c}{a} = 0$$

$$2\frac{b}{2a}x + \left(\frac{b}{2a}\right)^2 - \left(\frac{b}{2a}\right)^2 = 0$$

$$\left(x + \frac{b}{2a}\right)^2 - \frac{b^2 - 4ac}{4a^2} = 0$$

**WHERE'S THE CODE?**

## Coursework (cont)

- 3 tests throughout the year
  - These may be in your timetable already; if not, don't worry: announcements will be made via LC
- Administered via Learning Central but **MUST** be taken on the day of release.
- 10 questions per test on topics covered up to the day the test is taken.
- Designed to make you reflect upon and apply learning in labs/class.
- Proforma with details available via LC

## References I