Project unit introduction
COMS30044/COMS30045/COMSM0052 2021

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THIS UNIT IS 40 CREDIT POINTS

THAT IS A THIRD OF THE YEAR

TAKE IT SERIOUSLY

(Unless you're a third year Maths/CS MEng student, in which case you're taking COMS30044 and it's 20 credit points. But you should still take it seriously!)

RTFH

(Read The Friendly Handbook)

Overview of project units

CS offers three versions of this unit.

- **COMS30045:** Taken by final-year BSc students. The baseline.
- **COMSM0052:** Taken by final-year MEng students.
  Higher expectations and a 5cp innovation case component.
- **COMS30044:** Taken by third-year Maths/CS MEng students.
  Unit is only 20cp, lower expectations, half-size dissertation.

All three units involve spending TB1 finding a supervisor, then spending TB2 doing something interesting and writing a dissertation based on it.

The process is **identical** between them.

A rough timeline

Weeks 1–3: Start thinking about your project, Q&A's in Weeks 2 and 3.

Week 4–5: Release of project suggestions and available supervisors. In-person event if you're having trouble (details TBD).

End of Week 8: Deadline for finding a supervisor and starting preliminary work. Must also complete ethics training.

Weeks 9–11: Take-home exams for TB1 units. (So you won't have time to find a supervisor!)

Week 13: Start of TB2, serious project work begins.

Week 19: Innovation case deadline (COMSM0052 only).

Week 22: Project poster day, optional second marker meeting.

Week 24: Deadline for dissertation. (Extensions will be rare!)

May 16th–June 6th: Vivas.

How to come up with a project?

Two ways, equally good:

- Come up with an idea of your own, find a supervisor, work with them to refine it.
- Choose from a big list of supervisor-suggested projects in week 4.

The only advantage of coming up with your own idea is...

you get to work on your own idea!

What projects are allowed?

A project can be **anything** you can plausibly argue is "computer science".

It doesn't have to involve writing code (but it can do).
It doesn't have to involve doing maths (but it can do).
It doesn't have to involve thinking about users (but it can do).
It **does** have to involve writing a 25–50 page dissertation!

Some First-quality projects from last year:

- Building an app that turns C# code into music;
- Simulating the spread of worms in realistic network models;
- Examining the use of discriminatory metaphors in computer science;
- Implementing a proof that Super Mario World is PSPACE-hard.

More on the unit website!

What projects are actually good?

There's no one answer to this, since a lot of it depends on you:

- You have to be interested in it.
- It should rely on the skills you're best at.
- If you have specific career plans, it should tie into them.
 (Supervisors often act as references!)

But some things are universal:

- If you're going for a First, you should be aiming to **improve** on what's already out there. (Your supervisor will help with this.)
- You should be able to scale it up if it's going well...
- or scale it down if it's going badly.
- COMSM0052 students: Don't worry about the innovation case yet!
- If you need access to physical equipment on campus, you should have a backup plan in case of lockdown.
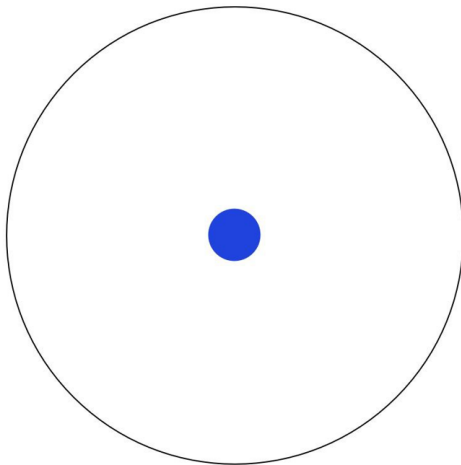
What research is like

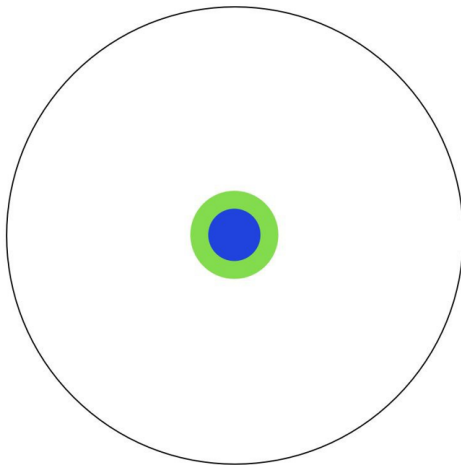Imagine a circle that contains all of human knowledge:
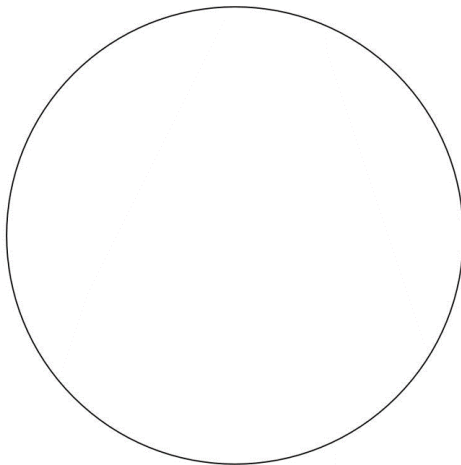
What research is like

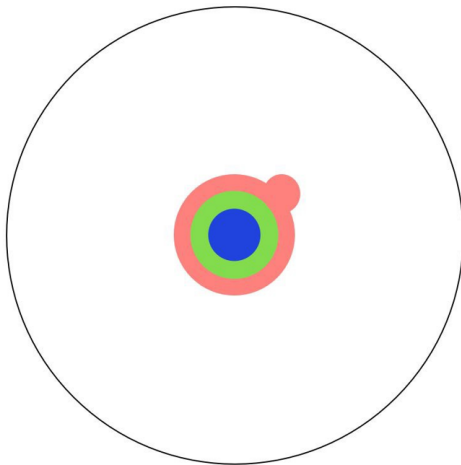By the time you finish primary school, you know a little:

What research is like

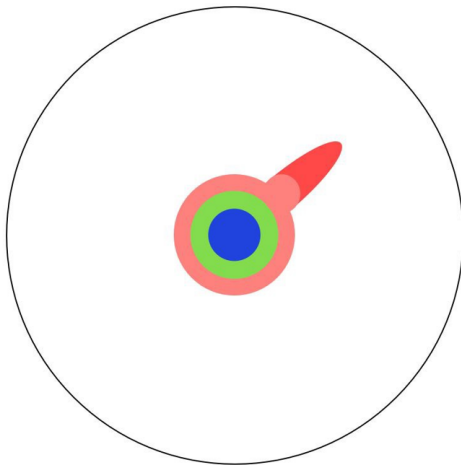By the time you finish secondary school, you know a bit more:
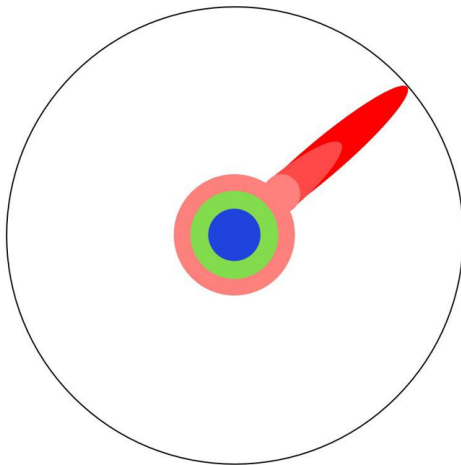
With a bachelor's degree, you gain a specialty:

A master's degree deepens that specialty:

Reading research papers takes you to the edge of human knowledge:

Once you're at the boundary, you focus:
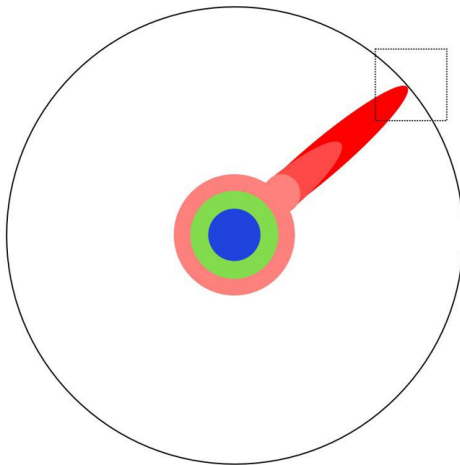
You push at the boundary for a few years:
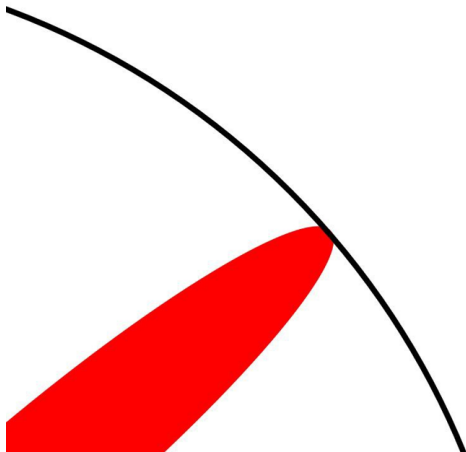
Until, one day, the boundary gives way:
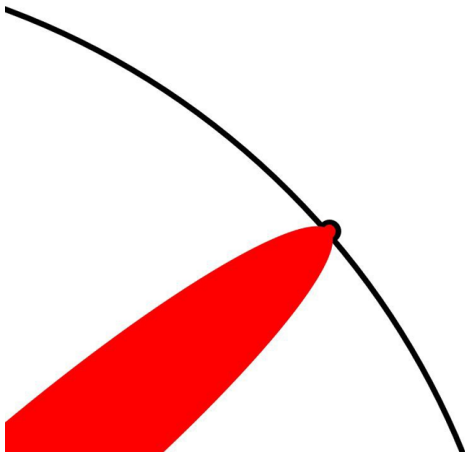
And that dent you've made is called a Ph.D.:

Ph.D.
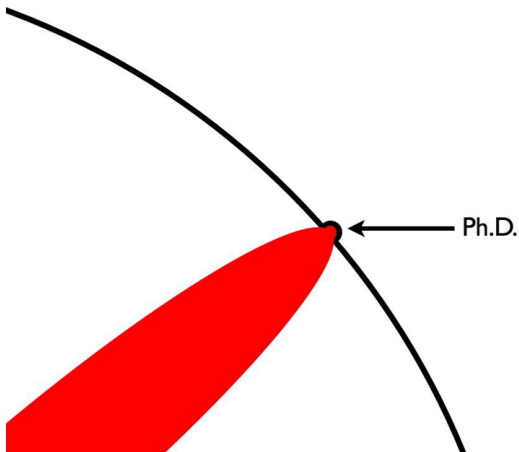
Of course, the world looks different to you now:
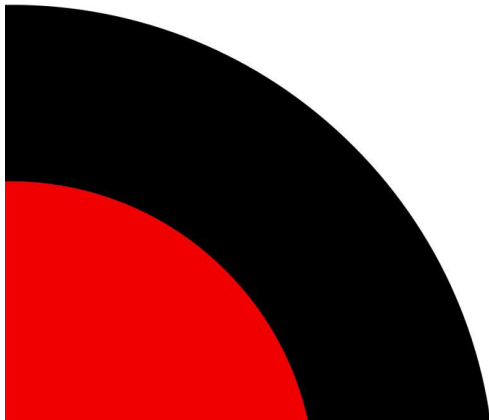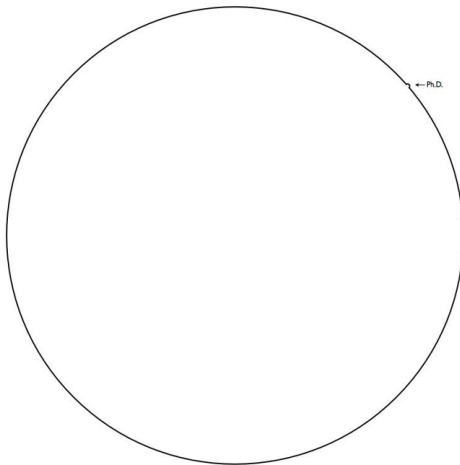
So don't forget the bigger picture:

What research is like

So don't forget the bigger picture: Keep pushing.

← Ph.D.

What research is like

So don't forget the bigger picture: Keep pushing.
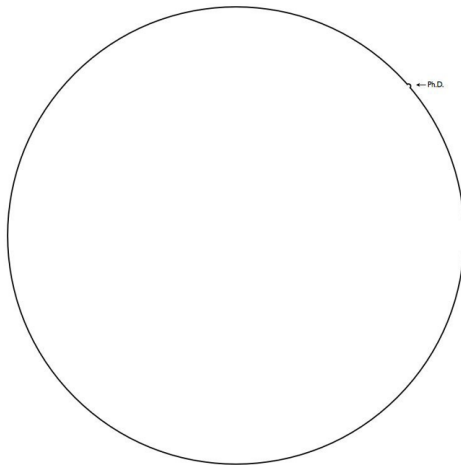
(And also cite your sources: The illustrated guide to a Ph.D.!)

Finding a supervisor

Finding a supervisor is **your** responsibility — we're not going to try and match you automatically. But we'll still help.
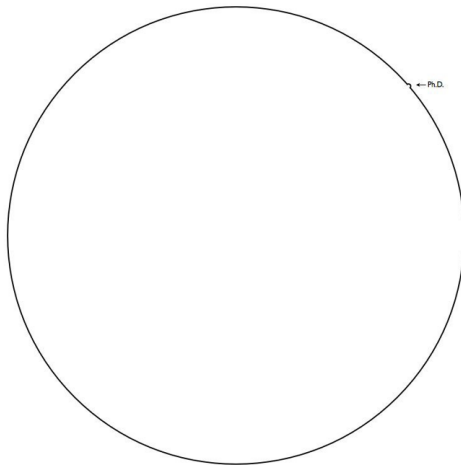
In week 4, we'll release a spreadsheet with a list of possible supervisors. Each entry will have:

- Some **suggested** (not compulsory!) projects;
- A list of keywords for projects they're interested in;
- A brief description of their supervision style;
- How many more students they're able to supervise (auto-updated).

2pm–4pm Wednesday Week 5: "Project matching session", Bill Brown.

This is **optional**, for people who are having trouble finding a supervisor or thinking of a project.

Details are still TBD, but likely to be standing around chatting with possible supervisors.

Approaching a possible supervisor

Email is best! Just give a quick summary of who you are, what sort of project you're interested in, and any relevant units you're taking, and they'll set up a meeting to discuss things in more detail.

If someone says no, it should be either because they're already at their limit of students, or because saying yes would be against your interests. Not because your email wasn't polished enough!

Things to bear in mind:

- Don't be afraid to approach people!
- Don't be afraid to ask for help refining your ideas!
- If someone doesn't reply to your email for 2-3 days, send a follow-up! We sometimes get 50+ **non-spam** emails per day, things get lost...
- Don't worry about etiquette except for not getting honorifics wrong. ("Dear Tilo" is fine. "Dear Dr./Prof. Burghardt" is fine, but make sure you get the right one. "Dear Mr. Tilo" will get an eyeroll...)

What will your supervisor do?

- Meetings for roughly an hour every two weeks from TB2 onwards to talk about your project in detail.
  - In-person if **both** people are comfortable with it.
- Reply to emails reasonably promptly.
- In TB1, help you shape your project ideas and make sure they're capable of high marks.
- Give high-level guidance, e.g. "This problem was solved in Friedman and Wardlow (2022)", "Have you tried sorting by Jobber quotient?"
- Give general guidance on writing your dissertation and look over a 5-page draft excerpt in detail before a meeting.

What won't your supervisor do? (Usually...)

- Give significant help outside your scheduled meetings.
    - Independence from your supervisor is part of the mark scheme!
- Have unofficial Teams chats outside your scheduled meetings.
- Reply to emails an hour after you send them on a Saturday night.
- Be a qualified writing tutor.
    - We will have CALD workshops for this in TB2!

This makes it a **bad idea** to rely on your supervisor for low-level guidance, e.g. "Your code won't compile because of this missing semi-colon". Tracking down the semi-colon could take up a whole meeting...

Treat contact time with them as a limited resource. If you can't finish your project without more contact time, scale down your project rather than trying to scale up your contact time!

The project specification

When you have your supervisor(s), you'll need to write a **project spec**.

This is a short form not worth any marks. But it's still important:

- It locks in your supervision (your supervisor will sign off on it), preventing horrible misunderstandings;
- It lets us know you've found a supervisor so the senior tutor doesn't have to chase you;
- **It decides who will mark your dissertation.**

Every thesis is marked by two people, your supervisor and a second marker.

We use the project spec to find a second marker with a background that ties into your project. We don't need much for this, but if we don't get it then your HCI project might be marked by a category theory lecturer.

The form will go live in week 4 alongside the spreadsheet, and is due on November 18th (end of Week 8).

Ethics training

This is a new requirement this year.

Everyone needs to know enough ethics to determine whether their project needs ethical approval.

Your supervisors should be able to advise you, but to use them effectively, you'll need to know what you don't know.

(Otherwise, you start running into elephant traps — e.g. GDPR or child safeguarding laws...)

We'll be putting out a video with more details, along with a Blackboard quiz. You **cannot** submit your project spec without passing this quiz. If you don't pass it before TB2, then you won't graduate.

(**Good news:** You can retake as often as you want! So we don't actually expect anyone to fail their degree this way.)

Edge cases

It's fine to be supervised by more than one person, but you'll need to decide in your project spec which of them will mark your project.

It's fine to be supervised by someone outside CS, e.g. an outside company, **as long as** you're co-supervised by someone inside CS. If you're having trouble finding someone in CS willing to co-supervise, email me.

Some people in CS might be willing to take on more students than they're allocated. But they don't have to, and you're asking for a large favour!

You're still allowed to look for a supervisor before week 4, but you won't be able to submit your project spec and lock things in yet.

Online Q&As on Tuesdays of Weeks 2 and 3 for further questions. (Or ask in the unit team!)

Summary

- Read the handbook.
- Start thinking about project choice now.
- A good project is a project you care about.
- Start looking for a supervisor in week 4.
- Submit your project spec by the end of week 8.

Good luck, and have fun!