>>> Upgrading your memor[y|ies]
>>> Some guidance for UoA undergraduates considering postgraduate Computer Science

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>>> Outline

1. Finding A Supervisor

2. 700 Prerequisites

3. Some Myths About Postgrad CS

4. Parting Words

Section 1

Finding A Supervisor

You can either:
  * Find a topic, and then a supervisor; or,

  * Find a supervisor, and then a topic

All academic staff are expected to supervise some students, so if you approach them, they will listen. Just remember always to be respectful of them and their time, and don't muck them about.

1. Figure out what fields of CS interest you most

2. Focus on one to three of them

3. Now either
   * Approach a potential supervisor who works in that field; or,
   * Continue narrowing your chosen field(s) to (a) specific topic(s)

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>>> Topic before supervisor
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If you want to find a topic, and then a supervisor to suit it.

There are (at least) three approaches:
  * Think of a question. Keep reading until you find the answer. Repeat until you find a question that nobody knows the answer to.

You have found the beginning of your topic.

If you want to find a topic, and then a supervisor to suit it.

There are (at least) three approaches:

* Think of a question. Keep reading until you find the answer. Repeat until you find a question that nobody knows the answer to.

* Read in your chosen field until you come across a recent paper where you think ``I could do that better.''

You have found the beginning of your topic.

If you want to find a topic, and then a supervisor to suit it.

There are (at least) three approaches:
  * Think of a question. Keep reading until you find the answer. Repeat until you find a question that nobody knows the answer to.

  * Read in your chosen field until you come across a recent paper where you think ``I could do that better.''

  * Think of a problem you have, for which you don't have a solution.

You have found the beginning of your topic.

1. Recall your UG papers. Which did you most enjoy/find interesting? What about something different?

Once you know which field you want to focus on

2. Look through *all* the academic CS staff profiles, to find those who work in that field.

3. Be prepared for them to have nothing of interest.

4. Think of particular topic areas you are most keen on.

5. Email them asking if they have projects in that topic you could do for your dissertation.

6. Wait a while.

7. If they haven't responded after two weeks, email again.

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>>> So you have found yourself a supervisor

 1. Arrange an initial meeting at their convenience

 2. Present your topic ideas to them; and/or

 2. Listen to the topic ideas they have

 3. Select your favourite, and refine it into a proposal
      * What is the motivation for it?  (Why)
      * What do you hope to achieve?  (What)
      * Will you need any extra equipment?  (How)
      * Work at a desk or in your supervisor's lab?  (Where)
      * Do you need to involve anyone else?  (Who)
      * Can you estimate a timeline?  (When)

 4. Develop that into a plan with your supervisor

It is never too early to get started on this.
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Section 2

700 Prerequisites

* Stated prerequisites are usually fairly logical

* If you have high enough grades otherwise, you *might* not
  need to meet them all

* Can make a concession request. Result up to enrolments
  staff

* Basically:
    * Do you have sufficient background knowledge?
    * Will you be able to keep up with this paper?

* If in doubt, contact the teaching staff for the paper

Recommendations that will apply to just about every paper.
  * CS 210, CS 220, CS 225 & CS 320 if possible

  * All recommended and required preparation listed on a
    course's description

  * Understanding of the basics of algorithms & data
    structures

  * Strong knowledge of at least one programming language

  * Familiarity with fundamental mathematics
      * Linear Algebra -- Vectors and matrices
      * Calculus -- Differentiation and integration
      * Discrete Mathematics -- Graph theory

  * Willingness to learn about whatever is needed

>>> In particular

For every paper in X I recommend all of Y:
  * CS 711, CS 732, CS 734
    1. CS 335
    2. At least one of CS 230, CS 235, CS 280
    3. CS 320, CS 351
    4. CS 340
    5. CS 350
    6. CS 313

For every paper in X I recommend all of Y:
  * CS 711, CS 732, CS 734
      1. CS 335
      2. At least one of CS 230, CS 235, CS 280
      3. CS 320, CS 351
      4. CS 340
      5. CS 350
      6. CS 313

  * CS 715, CS 771, CS 773
      1. CS 373, Maths 208/250
      2. CS 369
      3. CS 320
      4. CS 313

```
>>> In particular

For every paper in $X$ I recommend all of $Y$:
  * CS 705, CS 747
      1. CS 345
```

>>> In particular

For every paper in X I recommend all of Y:
  * CS 705, CS 747
     1. CS 345

  * CS 702, 725
     1. CS 313, CS 340
     2. CS 316
     3. CS 314

```
>>> In particular

For every paper in X I recommend all of Y:
  * CS 705, CS 747
     1. CS 345

  * CS 702, 725
     1. CS 313, CS 340
     2. CS 316
     3. CS 314

  * CS 726, CS 727, CS 742
     1. CS 314, CS 316
     2. For CS 727, stage 3 Maths
```

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>>> In particular
```

For every paper in X I recommend all of Y:
  * CS 705, CS 747
      1. CS 345

  * CS 702, 725
      1. CS 313, CS 340
      2. CS 316
      3. CS 314

  * CS 726, CS 727, CS 742
      1. CS 314, CS 316
      2. For CS 727, stage 3 Maths

  * CS 720, 750
      1. CS 320, CS 350

```
>>> In particular
```

For every paper in X I recommend all of Y:
  * CS 751, CS 752, CS 753
    1. CS 351
    2. CS 369
    3. CS 320

```
>>> In particular
```

For every paper in X I recommend all of Y:
- CS 751, CS 752, CS 753
    1. CS 351
    2. CS 369
    3. CS 320

- CS 760, CS 761, CS 765, CS 767
    1. CS 367
    2. CS 320, CS 350
    3. CS 369
    4. CS 351

Section 3

Some Myths About Postgrad CS

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>>> Myths

''PG CS is {}''
  * all maths
```

''PG CS is {}''
  * all maths

  * *no* maths

``PG CS is {}''
  * all maths

  * *no* maths

  * all theory

''PG CS is {}''
  * all maths

  * *no* maths

  * all theory

  * *no* theory

``PG CS is {}''
  * all maths

  * *no* maths

  * all theory

  * *no* theory

  * all programming

```
>>> Myths
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``PG CS is {}''
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  * *no* maths
  * all theory
  * *no* theory
  * all programming
  * *no* programming

``PG CS is {}''
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  * *no* maths

  * all theory

  * *no* theory

  * all programming

  * *no* programming

  * all writing

``PG CS is {}''
  * all maths

  * *no* maths

  * all theory

  * *no* theory

  * all programming

  * *no* programming

  * all writing

  * *no* writing

  * PG CS will be easier than UG

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* PG CS won't be much work

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* You have to be some sort of genius to do PG CS

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* You have to be an amazing programmer to do PG CS

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* PG CS won't be much work

* You have to be some sort of genius to do PG CS

* You have to be an amazing programmer to do PG CS

* You will be judged on the 'quality' of your code

>>> Myths 2: The Falsehoods

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* PG CS won't be much work

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* You have to be an amazing programmer to do PG CS

* You will be judged on the 'quality' of your code

* There's no benefit to good code quality in PG

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* You have to be some sort of genius to do PG CS

* You have to be an amazing programmer to do PG CS

* You will be judged on the 'quality' of your code

* There's no benefit to good code quality in PG

* I'm already an expert, there's no point in PG CS

* PG CS will be easier than UG

* PG CS won't be much work

* You have to be some sort of genius to do PG CS

* You have to be an amazing programmer to do PG CS

* You will be judged on the 'quality' of your code

* There's no benefit to good code quality in PG

* I'm already an expert, there's no point in PG CS

* PG CS has no relevance to a professional developer

* Once you have chosen a subject area, you can only work in
  that area forever more

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* Your dissertation *must* be completely novel

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* You'll never have to do a group project in PG CS

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* Your dissertation will be completely novel

* Your dissertation *must* be completely novel

* Your supervisor will always be available to suit your schedule

>>> Oh No! More Myths

* Once you have chosen a subject area, you can only work in
  that area forever more

* You'll never have to do a group project in PG CS

* You'll achieve everything you expect to in your
  dissertation

* Your dissertation will be completely novel

* Your dissertation *must* be completely novel

* Your supervisor will always be available to suit your
  schedule

* Researchers always know exactly what they're doing

Section 4

Parting Words

Postgraduate Computer Science is a very valuable (and enjoyable) experience, but it is a lot of work and *definitely* isn't for everyone.

If you are here, however, it just might be for you.

Always remember

If you knew what you were doing, it probably wouldn't be research.