

Career - by plan (or accident?): An academic perspective

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About myself

- **Process Systems Engineering**
 - Laurea Padova, MS and PhD U Conn (USA)
- **Co-founder/director**
 - Centre for Process Systems Engineering
 - Energy Futures Lab
 - Master in Sustainable Energy Futures
 - UNIHEAT
- **Entrepreneurship:**
 - Launched & managed
 - Process Systems Enterprise Ltd
 - Hexxcell Ltd



2008 MacRobert Award

UK's most prestigious prize for innovation in engineering.

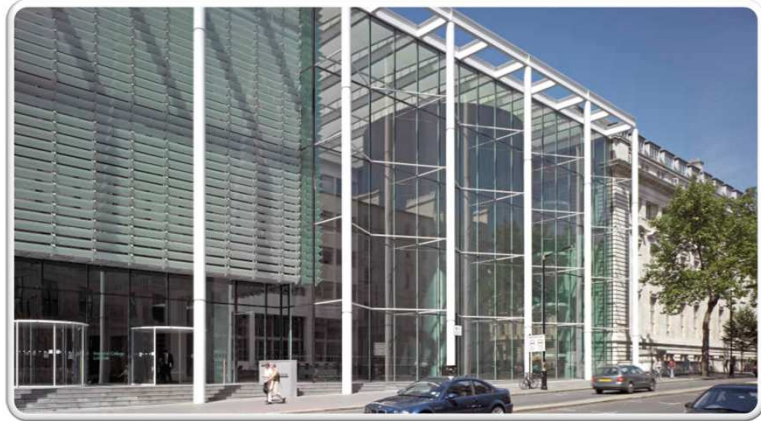
... for the demonstration of engineering excellence and innovation with proven commercial outcomes and benefits

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London**

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Imperial College London
Established in 1907

A research institute in the
heart of the London



UK's premier science and engineering university, ranked 8th worldwide*
over 16,000 students and more than 3,500 academic and research staff

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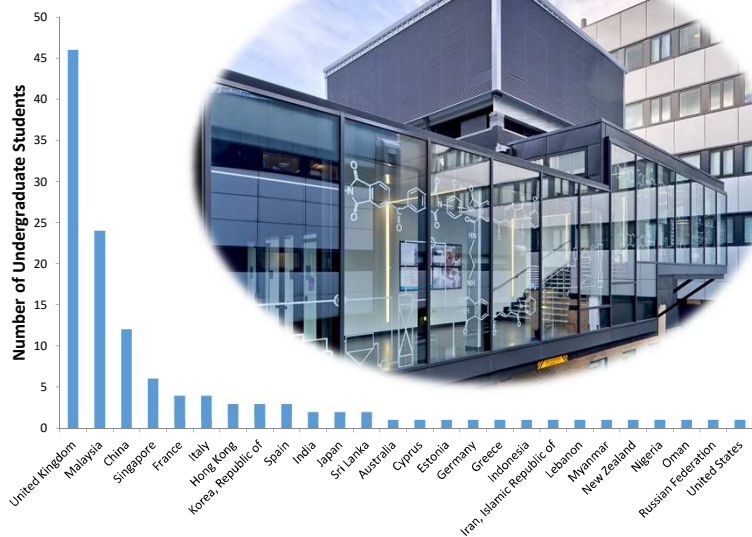
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Chemical Engineering

Truly cosmopolitan

- Members from over 30 different countries
- Global outlook

2014 UG Intake



How did I ever get to work there?

Audience identification moment

- Phd?
- Post doc?
- Other?

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Your Aims (my guess)



- do excellent research
- produce innovation
- have an impact on profession
- change the world for the better
- ...
- get out soon
- make the family happy
- get a good job
- make a career
- make money
- become famous
- ...

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Our Aims (your institution)



- excellence in research, innovation and impact on engineering and technology
- develop individual research, education and innovation leaders
- in industry, academia, government, ...
- ...
- get you out soon (completion rates)
- get you in good jobs, careers, influential positions
- make you rich and famous
- ...

Broad individual and institutional aims are largely aligned

Your *Individual* Aims ?



- Which country – place ?
- Girl/boy friend, family needs , ...
- Scholarship restrictions
- ...
- Experience (good/bad)
- Relations with supervisor/collaborators?
- ...
- Opportunities?

General rules or advice?

Experience is having made most mistake

- yours → learn and (do not) repeat
- somebody else's mistakes

Much depends on external circumstances (boundary conditions)

- country (culture, procedures, legal requirements, ...)
- discipline (chemistry vs engineering)

... → guiding principles

PhD researcher – usual career options

- Academia
- Industry (R&D, engineering, operations, management, ...)
- Other (finance, business, government, consultancies, NGOs, start-ups, ...)

What do you want to do when you grow up?
Do I need to choose now?

PhD researcher – some guiding principles

- Do (and be) the best you can quality, quality, quality !
- Work with the best you can institution, people, project,
equipment, technology, methods,
...
- Get to know the best you can networking, conferences, send
papers, get in touch, ask questions,
...
- Get as much (recognised) output as you can

Whatever you what to do next!

PhD researcher - FAQs

Q. Things do not work (place, project, supervisor, key idea, ...)

persevere or change?

(how do I get to new place, project, supervisor, key idea ?)

PhD researcher

Many opportunities:

fellowships

prizes

travel/visit grants (short / long stays, initiate collaborations ...)

...

➔ go and find out!

do not be shy to ask, apply, ...

PhD researcher

Some good results, almost there ...

Q. **Finish early or refine** (experiment, paper, thesis, ...) **once more?**

Perfection is the enemy of good
Can you get some good papers out of it?
1 extra year in paid job or as a student?
(Get advice from people you trust)

PhD researcher

Work done, thesis almost there, got a job to go to ...

Q. **Take job or finish thesis?**

In my experience – finish thesis !!!
(or you may never do)

PhD researcher / Post doc (early academic)

Working on three things, all promising ...

Q. Pursue all or concentrate on one?

easier to get recognised if you become “the” (or “an”) expert in one area

but ... not all eggs in one basket

do not repeat same idea to death

Work on at least one (other) high-risk-high-reward idea

PhD researcher – Who will hire me?

Focus on **WHY** people would hire you

Expert in something

Finished on time

Good publications record

Good references

Communication skills

Research management / supervision

Some teaching experience

... any signs of life??? Leadership??? Ideas???

(a sloppy CV does not help !!)

PhD researcher – some warning

Whatever you do as PhD project
(even if you are hired for those specific skills and expertise)
in 5 years you will be doing something else...

A. **Develop / retain some broad, portable skills!**

Post docs – a career?

A fixed term research contract

Usually, a choice for those who want

- to be an academic
- to stay in research and continue PhD/other work

Q. **Worth doing? How long? One or more post docs?**

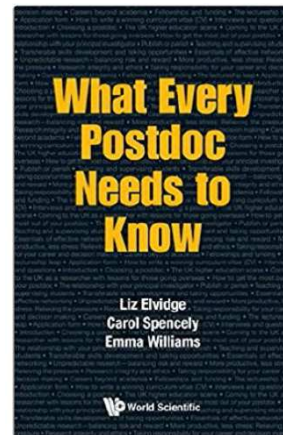
Discipline variations

Chemistry
Chemical engineering
Biology

1-2 postdocs expected
non necessarily (maybe 1)
?

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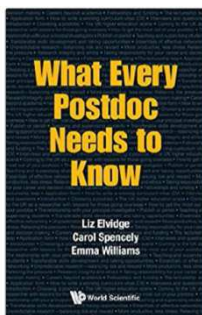
[*What Every Postdoc Needs to Know*](#)

Dr Liz Elvidge Head of the [Postdoc Development Centre](#) at Imperial College

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Some notes



- Post-doc is not a career (but may help to get one)
- only 10% of UK postdocs go onto to permanent academic positions
- the longer people stay in postdoc positions, the more they want to become academics (yet the less likely that becomes as time goes by)
- after ~4 years the academic door effectively closes, as others (younger) come through

Do not work yourself out of a career move !

Decisions, decisions

“90% will ultimately be disappointed and in some cases believe that they are a failures at something they have been doing for so long,”

Liz Elvidge

Careers outside of academia – **industry, publishing and research administration, ...** – should not be viewed as ‘alternative’ or lesser, but rather that they are all equally valid paths

What you can do

- Build that publication record
- Develop some independent work (proposals, supervision, ...)
- Plan ahead - Do not leave too long
- Be realistic about expectations (XXX rather than MIT or Harvard?)
- Get friendly advice!

Following has been found helpful at IC

Mock interview scheme:

- Any postdoc can ask for an interview for any prospective job.
- Interview by a Career Advisor + two or three postdocs.
- A god dose of hard time + constructive feedback

“Around 50% of postdocs land the job following a mock interview. That’s substantially higher than success rate than without one.”

Other helpful ideas

- Skill-based tip sheets
- Shadowing scheme, allowing postdocs to shadow staff who have studied for a PhD or postdoc, but gone into a different professional role.
- External training (at Imperial, 10 days/year allowance)

Get yourself other marketable career skills!

Decisions, decisions

Head or heart?

Summary (not a conclusion!)

- **Know yourself** – what you want
- Work hard, work well
- Give yourself options
- Contacts, contacts, contacts
- Plan A, Plan B, Plan C , ... and yet be open/ready to unplanned chances
- Those who search will find
- May not be what you had in mind in the first place

- Luck has a role! Good luck!

Not Really

All the while
you are offering me
advice not to compromise
with my principles,
I never surmised
that what you were seeking
was either to monopolise
the privilege of compromising
or to acquire, finally,
your own principles.

Aris Adanis
The Maiden of the Isle

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Questions? Discussion?

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