Department of Computing
PhD Programme

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Prof. Marek Sergot (PG tutor)

Prof. Murray Shanahan (PG admissions)

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Dr. Amani El Kholy (PG Administrator)
What is a PhD?

A degree - Doctor of Philosophy
- PhD thesis + Viva, 2 Independent Examiners

How long does it take?
- 3.5 years – 4.5 years, plus intermediate milestones

What qualifications do I need?
- normally First class UG or a Distinction Masters

What will I do during my PhD?
- Learn how to do research in a field of computing
- Become an expert in and contribute to some aspect of the field
- Develop close relationship with supervisor(s), colleagues, researchers in area.
What is a PhD thesis?

- A large document (150-200 pages) – quality, not quantity.
- An coherent exposition of an original piece of research
- Something that could be published

“A thesis for the PhD must form a distinctive contribution to the knowledge of the subject and afford evidence of originality shown by the discovery of new facts and/or by the exercise of independent critical power.”
What is research?

A systematic process designed to contribute to the understanding of a subject

It involves

- postulating hypothesis
- testing it via experimentation, simulation, mathematical proof
- examining why it failed...
- and starting again!
Why do a PhD? – *now, or later*

**Personal Investment**

- Intellectual challenge. An opportunity to
  - tackle a long term problem for 3.5 years
  - be creative within your field
  - contribute to your field
  - develop skills that give you a different perspective of the world

- A flexible and enjoyable endeavour.

- Interact with outstanding people from all over the world.

- Get access to a different kind of career path.
and after the PhD...

- Felipe Franciosi, 2012, Senior Software Performance Engineer at Citrix,
- Sergio Maffeis, 2006, Lecturer Department of Computing Imperial,
- Aleksander Trifunovic, 2006, Quantitative Developer at G-RESEARCH
- Nicholas Dingle, 2004, Big Data Scientist at OCF
- Lee Howes, 2009, Qualcomm, Qualcomm representative at OpenCL ctte
- Alex Buckley, 2007, spec lead Java and JVM at Oracle
- Andreas Fidjeland, 2006, early employee Deepmind bought by Google
- Douglas De Jager, 2009, founded spider.io bought by Google
- Vrizlynn Thing, 2008, Head of Cybercrime & Security Intelligence, I2R, A*STAR,
  Singapore Changyu Dong, 2008, Lecturer, Strathclyde
- Rudi Ball, Post-Doc, 2012, SMART-MIT, Singapore
- Srdjan Marinovic, 2012, Post-Doc, ETH Zurich
- Ashley Brown, 2009, founded spider.io bought by Google
- Alexander Summers, 2009, Post-Doc, ETH Zurich
- Thomas Dirnsdale-Young, 2011, postdoc Univ. Aarhus
- Mohammad Raza, 2010, Microsoft Research Cambridge
- David Cunnigham, 2009, Google NY
- Peter Collingourne, 2010, Google Mountainview, contrib. LLVM and Go compiler
- Dario Fischbein, 2012, Head of Quantitative Development at Algorithmic Trading Company, US
- Dalal Alrajeh, 2010, Junior Research Fellow at Imperial College, UK
- Lucio Mauro Duarte, 2007, Associate Professor , UFRGS - Porto Alegre, Brazil
- Martin Bellamy, 2014, Director Government G-Cloud, now Director ICT Cambridge University
- Reuben Rowe, 2013, Teaching Fellow DOC IC
- ...
some achievements of current PhDs…

- Qualcomm Innovation Fellowship – 2013
  - Joan Alabort-Medina (1 out of 3 in UK)
- 3 months NII International Internship Award in Japan
  - Zhongliu Xie
  - Claudia Schulz,
- EPSRC doctoral prize fellowships (2)
- Armstrong Medal Prize (1)
- Rumyana Neykova, 3 month VMWare PhD fellowship
- Pantazis Deligiannis, 3 month internship Microsoft Research Bangalore, India
- Azalea Raad, 3 month internship Microsoft Research Cambridge
- Qualcomm Innovation Fellowship – 2014
  - Hanme Kim and Patrick Snape (2 out of 3 in UK, and EU overall)
- Luo Mai and Paolo Costa’s research paper appears in The Register
- Renato S. Moreno, A. Davison, P. Kelly’s research paper in New Scientist
- Zefeirios Fountas’ research paper in the New Scientist
- Sebastian Kaltwang, 3 month internship Google Mountainview
- Petr Hosek, 3 month internship Google Mountainview
- Marcel Guenther, 3 month internship Facebook
What do PhD students do at DOC

- Research, in collaboration with group/supervisor
- Milestones & Reports
- Cohort by section and year, 2nd supervisor, mentor, PG tutor
- Writing Seminar
- Transferable Skills Courses
- 1/2/3 min Madness
- Careers Fair
- Weekly cakes and talks
- PhD activities – eg Bletchley Park
- Attend conferences,
- Organize conference
- Attend courses
- Help with teaching – paid,
- …
4 Flavours of PhD

1. “normal” PhD
2. PhD attached to a research project
3. Doctoral Training Scholars
4. HiPEDS

Moreover, you can do you PhD full-time or part-time.
1. “normal” PhD

• 3 year PhD programme
• Assigned a 1\textsuperscript{st} & 2\textsuperscript{nd} supervisor
• Research area flexible, but within supervisor’s expertise
• Month 3: description of research area
• 1\textsuperscript{st} and 2\textsuperscript{nd} Year: some transferable Courses
• Month 9: plan of the research and detailed background
• Month 36 – Month 48 Thesis submission

For more details see
http://www3.imperial.ac.uk/computing/phd/scholarships
2. PhD attached to a Research Project

- similar to “normal” PhD
- Research area not flexible
- Paid a salary but only during duration of project
- May increase duration

For more details see
http://www3.imperial.ac.uk/computing/phd/scholarships
3. Doctoral Teaching Scholars

• 4.5 PhD programme including Cert. of Teaching and Learning
  - gives variety of teaching experiences, eg
  - tutorial preparation, lab exercise preparation
  - project supervision, guest lectures
  - opportunity to teach on a course
  - also marking, invigilation, tutoring, etc.

• Teaching (approx. 1 year) spread throughout 4 years

• Certificate by Imperial College Educational Development Unit

For more details see http://www3.imperial.ac.uk/computing/phd/scholarships
4. HIPEDS
High-performance Embedded and Distributed Systems
DoC and EEE (Director Professor Wayne Luk)

- Exciting new style 1+3 PhD programme
  - integral MRes in year 1
  - more emphasis on multi-disciplinary & transferable skills
  - MRes mostly PhD project, 2 taught courses,
    short group project,
    PhD literature ISO, Academic Writing
- Work in a lively environment of fellow students
- Industrial internships encouraged
- Opportunities range from implantable smart sensors
to secure cloud service providers, and all points in between

For more details see [http://hipeds.doc.ic.ac.uk](http://hipeds.doc.ic.ac.uk)
DOC Scholarships (for October 2014)

• Non-HiPEDS EPSRC DTA – £ 15,700 pa - 3.5 years
  either Home fee status,
or EU fee status & previous 3 years in UK - eg degree

• Non-HiPEDS EPSRC DTA – PhD fees only
  if EU without 3 previous years in UK

• HiPEDS CDT (EPSRC DTA) - £ 15,700 pa – 4.0 years

• HiPEDS CDT (EU fee status)
  limited number of scholarships

• PhD Teaching Scholars – £ 15,700 pa - 4.5 years
  either home or EU

For more details see
http://www3.imperial.ac.uk/computing/phd/scholarships
Applying for a PhD

You need to...

- Fill in an application form
- Get letters of recommendation
- Send your CV
- Submit a personal/research statement

and discuss with potential supervisors

Useful links

http://www3.imperial.ac.uk/computing/research
http://www3.imperial.ac.uk/computing/phd
www.imperial.ac.uk/pgprospectus/
Questions ?