Department of Computing
PhD Programme

Prof. Sophia Drossopoulou,
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Prof. Marek Sergot (PG tutor)

Prof. Murray Shanahan (PG admissions)

Prof. Wayne Luk, Dr. Krysia Broda (CDTs)

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 1st & 2nd supervisor
- Research area flexible, but within supervisor's expertise
- Month 3: description of research area
- 1st and 2nd 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

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/scholar
ships

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 ?