How to enjoy a career as a woman in computing: the power of networks

Inaugural ACM WomENcourage

Professor Dame Wendy Hall
1st March 2014

@DameWendyDBE
My Life Bits
My Journey starts

- **1974** BSc Mathematics, University of Southampton

- **1977** PhD Pure Mathematics, University of Southampton
AUTOMORPHISMS AND COVERINGS OF KLEIN SURFACES

by

Wendy Hall

A thesis submitted for the degree of Doctor of Philosophy

Faculty of Mathematical Studies

University of Southampton

August 1977
- **1974** BSc Mathematics, University of Southampton
- **1977** PhD Pure Mathematics, University of Southampton
- **1984** Lectureship in Computer Science, University of Southampton
- **1986** MSc Computer Science, City University, London
What do India, the Earl Mountbatten of Burma, the University of Southampton and my research career have in common?
The Mountbatten archive moved to Southampton in 1987.
Microcosm: Mountbatten archive application
Where have all the girls gone?

• 1987 Lovegrove and Hall “Where have all the girls gone?” published

• First WIC (Women in Computing) conference in Lancaster

• I’m feeling very vulnerable doing multimedia in a CS department!

• WIC mailing list abandoned

• I become an activist for gender diversity in CS, and in science and engineering generally
Table 7.1 UCCA Statistics for Female and Male Entrants: University courses in Computer Science.

<table>
<thead>
<tr>
<th>Year</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>%</th>
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<tbody>
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<td>1978</td>
<td>737</td>
<td>233</td>
<td>970</td>
<td>24</td>
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<tr>
<td>1979</td>
<td>966</td>
<td>299</td>
<td>1265</td>
<td>24</td>
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<tr>
<td>1980</td>
<td>1240</td>
<td>379</td>
<td>1619</td>
<td>23</td>
</tr>
<tr>
<td>1981</td>
<td>1306</td>
<td>374</td>
<td>1680</td>
<td>22</td>
</tr>
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<td>1982</td>
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<tr>
<td>1985</td>
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<td>1986</td>
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<td>1987</td>
<td>1560</td>
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<td>1730</td>
<td>10</td>
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<td>1988</td>
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<td>228</td>
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<td>1989</td>
<td>1853</td>
<td>277</td>
<td>2130</td>
<td>13</td>
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</table>
Entry to Computer Science courses at UK Universities

- ○ - Men
- □ - Women

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>500</td>
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<tr>
<td>1980</td>
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<td>1990</td>
<td>1500</td>
</tr>
<tr>
<td>1992</td>
<td>1600</td>
</tr>
</tbody>
</table>
My research career begins

- 1989 Sabbatical at Ann Arbor University
- 1990 First paper at international conference ECHT’90 in Paris
- 1991 I attend my first ACM conference ACM Hypertext ‘91 in Texas where I first see the World Wide Web
- 1994 My first start-up company – Multicosm Ltd
- 1994 I become the first female professor in Engineering at Southampton
- I’m still feeling very vulnerable!
Internet Growth - Usage Phases - Tech Events

Read Only Web
- Dot com boom
- Internet Explorer
- Amazon.com
- Streaming media
- SSL encryption
- Netscape Navigator
- Mosaic
- WWW introduced
- Commercialization

Read/Write Web
- Dot com bubble bursts
- Wifi introduced
- Broadband introduced
- Google
- Firefox
- Facebook
- Twitter
- Enterprise 2.0
- Web 2.0
- Mobile Web exceeds desktop
- iPhone
- iPad
- 5 bn mobile connections
- 400m broadband subs

Social Web
- Dot com bubble
- Mobile Web
- Facebook users

Note – events shown relate to the time axis only.

Mark Schueler 2011

Hosts and Users (millions)


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Time to breath and time to help organise

• 1996-2002 EPSRC Research Fellow – this gave me the time to develop my research

• 1996-2001 Member of EPSRC Council – this was by spring board for influence

• 1996 I take over as Chair of the BCS Publications Committee

• 1998 Vice President Publications of BCS

• 1999 I became a member of ACM Publications Board

• 2000 Awarded the CBE in Queen’s Birthday Honours List

• 2002-2007 Head of Electronics and Computer Science at University of Southampton
Time to pay back and ability to influence

• 2003-4 President of the British Computer Society

• Supported the formation of BCS Women by the formidable Sue Black

• 2005 Chair of the BCS Women’s Forum

• 2004-2010 Member of UK Prime Minister’s Council for Science and Technology

• 2005-8 Senior Vice-President of the Royal Academy of Engineering

• 2006 Anita Borg Technical Leadership Award - hooray for the Grace Hopper Conference
Content, Emergence and Unanticipated Reuse

The four micro principles of the Semantic Web

1. All entities of interest, such as information resources, real-world objects, and vocabulary terms should be identified by URI references.

2. URI references should be dereferenceable, meaning that an application can look up a URI over the HTTP protocol and retrieve RDF data about the identified resource.

3. Data should be provided using the RDF/XML syntax.

4. Data should be interlinked with other data.
“Web Science represents a pretty big next step in the evolution of information. This kind of research is likely to have a lot of influence on the next generation of researchers, scientists and, most importantly, the next generation of entrepreneurs who will build new companies from this.”

Dr Eric Schmidt, CEO, Google Inc.
Making a difference globally

• 2006-2008 Deputy President of the ACM

• 2008-2010 President of the ACM

• Main issues – internationalisation and giving women a voice at the top table
  – Change of governance for ACM-W and a seat on ACM Council
  – Formation of ACM India, Europe and China – all with a seat on ACM Council
  – Support for establishment of ACM-W Councils in those regions
But how much difference have we really made?
Dame Wendy
Faculty of Physical and Applied Sciences

The Faculty of Physical and Applied Sciences consists of 1,183 undergraduate, 290 taught and 369 research postgraduate students. It has 370 academic and 140 other staff.

The Faculty is located on the University’s Highfield Campus, and spans a wide range of disciplines including astronomy, computer science, electrical power engineering, electronics, nanotechnology, optoelectronics, and physics, and undertakes fundamental, transformative and world-leading research in all these areas. In the last RAE (2008) 95 per cent of the Faculty’s research was ranked at world-class or international standard.

The Faculty’s outstanding research facilities include the new £100M Mountbatten Building which provides unique clean room facilities for photonics and nanofabrication. With world-leading facilities, world-class teaching and research, the Faculty offers excellent opportunities to both researchers and students.

Key people

Professor Dame Wendy Hall, Dean of the Faculty of Physical and Applied Sciences
Maureen Sweetman, Faculty Operating Officer
Dean Mills, Faculty Finance Manager

Academic groups
Meeting ACM Student Chapter at SVCE
Networks help us find our voice
And today the girls are back and doing it for themselves (GirlGeek, She++ etc.)
We need to support them to be the leaders of our community tomorrow