Alan Turing Centenary Celebration

Faculty of IT, Monash University 14 September 2012

Discrete Mathematics Research Group
Alan Turing Centenary Celebration

Computer Science at Monash University

- founded 1968
- research areas include: artificial intelligence, machine learning, bioinformatics, optimisation, constraint technologies, operations research, information visualisation, electronic art, distributed systems, software engineering, data management, information security and cryptography, theory of computation, discrete mathematics, ...

- Bachelor of Computer Science
- Bachelor of Software Engineering
- Bachelor of Business Information Systems
- Bachelor of Information Technology and Systems [Caulfield]
- Master of Information Technology [coursework/minor thesis]
- MPhil, PhD [research]

\(^1\) Academic Ranking of World Universities, 2012
Alan Turing Centenary Celebration

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- Monash ranked top in Australia for Computer Science

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## Alan Turing Centenary Celebration

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<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
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<tr>
<td>9:10am</td>
<td>Graham Farr</td>
<td>Welcome</td>
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<tr>
<td>9:15am</td>
<td>Graham Farr</td>
<td>Alan Turing</td>
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<tr>
<td>9:25am</td>
<td>David Albrecht</td>
<td>Turing machines</td>
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<td>9:45am</td>
<td>Kerri Morgan</td>
<td>Uncomputability</td>
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<td>9:55am</td>
<td>James Harland (RMIT)</td>
<td>Turing and ordinal logic</td>
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<tr>
<td>10:05am</td>
<td>Carlo Kopp</td>
<td>Military context of Turing’s work at Bletchley Park</td>
</tr>
<tr>
<td>10:10am</td>
<td>Ron Steinfeld</td>
<td>Turing and the Enigma cypher</td>
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<tr>
<td>10:25am</td>
<td></td>
<td>Morning coffee</td>
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<tr>
<td>10:55am</td>
<td>Doug Hamilton</td>
<td>Commentary on chess game: Turing’s Algorithm v. Garry Kasparov</td>
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<tr>
<td>11:10am</td>
<td></td>
<td><em>Group photo in R4</em></td>
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<tr>
<td>11:15am</td>
<td>Arun Konagurthu</td>
<td>Turing and Morphogenesis</td>
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<tr>
<td>11:35am</td>
<td>Kevin Korb</td>
<td>The Turing Test</td>
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<tr>
<td>11:55am</td>
<td>David Dowe</td>
<td>Universal Turing Machines, probability and intelligence</td>
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<tr>
<td>12:15pm</td>
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<td>Lunch</td>
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<tr>
<td>1:30pm</td>
<td></td>
<td>Finish</td>
</tr>
</tbody>
</table>
Alan Turing

Graham Farr
Clayton School of IT, Monash University,
Victoria 3800, Australia
Graham.Farr@monash.edu

14 September 2012
Family tree

John Robert Turing
*Maths degree, Cambridge*

Julius Mathison Turing
*Indian Civil Service (1873–1947)*

m. 1907

Ethel Sara Stoney
(1881–1976)

John Ferrier Turing
(1908–…)

#5

John Dermot Turing
(b. 1961)

Alan Mathison Turing
(1912–1954)
Alan Mathison Turing

1912 born in London (23 June)
1918 St Michael’s (private day school)
1922 Hazelhurst (preparatory school);
\textit{Natural Wonders Every Child Should Know} (E.T. Brewster)
1926 Sherborne School (boarding)
1927 friendship with Christopher Morcom (d. 1930)
1931 undergraduate, King’s College, Cambridge
1935 Fellow, King’s College, Cambridge;
first paper (group theory)
1936/37 most famous paper: On computable numbers, with an
application to the Entscheidungsproblem
1936 Princeton
1938 awarded PhD, returned to Cambridge,
course at Government Code & Cypher School
Alan Mathison Turing (cont’d)

1939  Bletchley Park
1945  National Physical Laboratory
1947  Cambridge
1948  Manchester
1950  ‘Turing Test’ paper
1951  Fellow of the Royal Society
1952  Morphogenesis paper
1952  arrest, trial
1954  died in Wilmslow, Cheshire (7 June)

2009  apology from British PM
2012  Alan Turing Year
Academic Family tree

Alan Turing (Princeton, 1938)
Academic Family tree

Alonzo Church (Princeton, 1927)

Alan Turing (Princeton, 1938)
Academic Family tree

Oswald Veblen (Chicago, 1903)
   … | …
   \|   /
Alonzo Church (Princeton, 1927)
   … | …
       \|    /
      \    /
     Alan Turing (Princeton, 1938)
Academic Family tree

E. H. Moore (Yale, 1885)

Oswald Veblen (Chicago, 1903)

Alonzo Church (Princeton, 1927)

Alan Turing (Princeton, 1938)
Academic Family tree

\[ \ldots, \text{Bernoulli}^2, \text{Euler}, \text{Lagrange}, \text{d’Alembert}, \text{Laplace}, \text{Poisson}, \ldots \]

\[ \vdots \]

E. H. Moore (Yale, 1885)
\[ \ldots \]
Oswald Veblen (Chicago, 1903)
\[ \ldots \]
Alonzo Church (Princeton, 1927)
\[ \ldots \]

**Alan Turing** (Princeton, 1938)
Academic Family tree

... Bernoulli, Euler, Lagrange, d’Alembert, Laplace, Poisson, ...

E. H. Moore (Yale, 1885)

Oswald Veblen (Chicago, 1903)

Alonzo Church (Princeton, 1927)

Alan Turing (Princeton, 1938)

Robin O. Gandy (Cambridge, 1953)
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Robin O. Gandy (Cambridge, 1953)
Alan Turing

- unconventional; strange; untidy dresser
- remote; difficult; fair-minded; honest; candid
- in adulthood, diversity of friends
- homosexual
- marathon runner
- played Chess, Go, ...
“Monopoly” board drawn by William Newman, son of Max Newman (Cambridge, Bletchley Park, Manchester, and mentor to Turing); William and Alan played on it in the early 1950s. http://www.bletchleypark.org.uk/
Alan Turing Monopoly Board, Bletchley Park.
http://www.bletchleypark.org.uk/
Alan Turing

- readily crossed discipline boundaries
- “a deep rather than a fast thinker” (Jack Good)
- self-effacing about his work in public