# 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]

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[1]Academic Ranking of World Universities, 2012

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- ▶ Monash ranked top in Australia for Computer Science[1]

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# Alan Turing Centenary Celebration

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

# Alan Turing

Graham Farr

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Victoria 3800, Australia

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http://www.csse.monash.edu.au/∼gfarr/

14 September 2012

# Family tree

John Robert Turing
*Maths degree, Cambridge*

Julius Mathison Turing     m. 1907     Ethel Sara Stoney
   *Indian Civil Service*
    (1873–1947)                             (1881–1976)

John Ferrier Turing           **Alan Mathison Turing**
   (1908–. . . )                      (1912–1954)

    #5

John Dermot Turing
   (b. 1961)

# Alan Mathison Turing

| | |
|---|---|
| 1912 | born in London (23 June) |
| 1918 | St Michael's (private day school) |
| 1922 | Hazelhurst (preparatory school); |
| | *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)

$\cdots \mid \cdots$

**Alan Turing** (Princeton, 1938)

# Academic Family tree

Oswald Veblen (Chicago, 1903)

$\cdots \mid \cdots$

Alonzo Church (Princeton, 1927)

$\cdots \mid \cdots$

**Alan Turing** (Princeton, 1938)

# Academic Family tree

E. H. Moore (Yale, 1885)

$\cdots$ | $\cdots$

Oswald Veblen (Chicago, 1903)

$\cdots$ | $\cdots$

Alonzo Church (Princeton, 1927)

$\cdots$ | $\cdots$

**Alan Turing** (Princeton, 1938)

# Academic Family tree

$\vdots$

..., Bernoulli$^2$, Euler, Lagrange, d'Alembert, Laplace, Poisson, ...

$\vdots$

E. H. Moore (Yale, 1885)

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Robin O. Gandy (Cambridge, 1953)

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··· | ···

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··· | ···

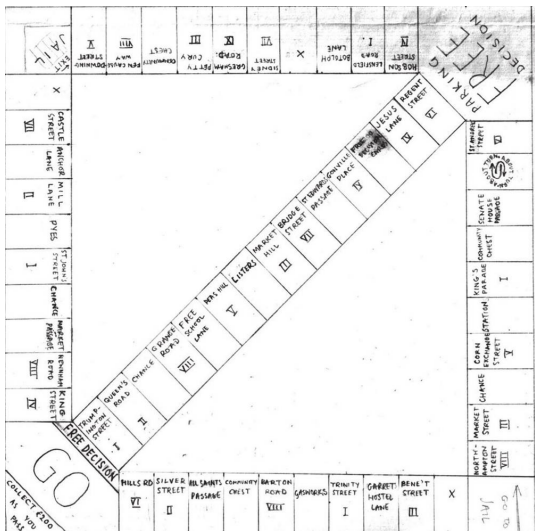Alonzo Church (Princeton, 1927)

··· | ···

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···

# 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/
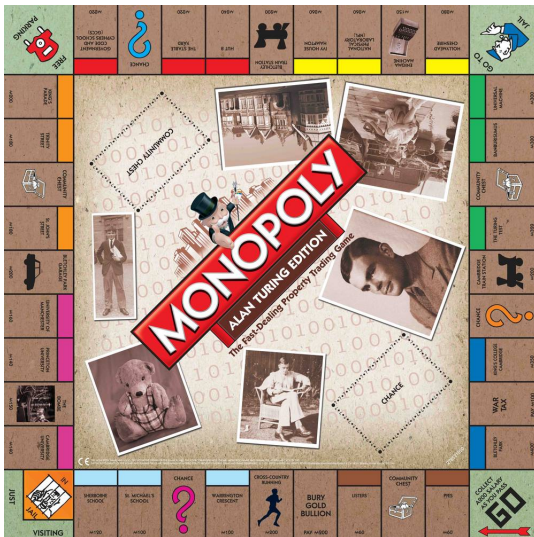
Alan Turing Monopoly Board, Bletchley Park.

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