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# IAN FOSTER

## NARRATIVE

I am a computer scientist whose work at the intersection of computing and the sciences has produced both practical technologies that have seen wide adoption and concepts and methods that have proven influential in research and education. My research interests span a range of topics in parallel, distributed, and data-intensive computing. A unifying theme is a desire to use the power of rapid communication to accelerate discovery, whether by linking people with remote computers and data, accelerating complex computational processes, or enabling distributed virtual teams. I pursue use-inspired basic research, meaning that I employ challenging practical problems to motivate and focus work on hard problems in computer science. Over the years, these practical problems have come from such fields as environmental science, economics, high-energy physics, biomedicine, and engineering. I often build sophisticated artifacts (software and distributed systems) in order to apply, evaluate, and disseminate new concepts and methods. Thus, my work frequently involves large teams of disciplinary scholars, computer scientists, and software engineers.

## EDUCATION

1985 - 1988 Imperial College London, United Kingdom
*PhD, Computer Science and Diploma of Imperial College*

1977 - 1979 University of Canterbury Christchurch, New Zealand
*BSc (Hons I), Computer Science*

## PROFESSIONAL EXPERIENCE

2006 - Argonne National Laboratory Argonne, IL
The University of Chicago Chicago, IL

*Senior Fellow, Computation Institute (CI); Argonne Distinguished Fellow; Arthur Holly Compton Distinguished Service Professor of Computer Science; Senior Fellow, Institute of Genomic and Systems Biology; Fellow, Institute of Molecular Engineering*

[Previously: Asst. Scientist 1989-1992, Scientist 1992-1997, Senior Scientist 1997-2008, Math & Computer Science Division, Argonne; Assoc. Professor 1996-2000, Professor 2000-2006; Dept of Computer Science, University of Chicago; Director, Computation Institute 2006-2016]

- Lead cross-institutional, multi-disciplinary research team with more than 30 staff, postdocs, and students, and an annual budget of ~$6M
- Conduct research in distributed, parallel, and data-intensive computing, and publish technical articles that have seen more than 100,000 citations, yielding an h-index (a commonly used measure of scientific impact) of 122
- Pioneer new technologies, algorithms, and methods that have seen wide adoption, including grid computing (technologies, infrastructures, and applications), parallel climate models (e.g., Parallel Community Climate Model), and parallel programming languages (e.g., Swift)
- Establish and manage major computer science and computational science projects, including Earth System Grid, Grid Physics Network, International Virtual Data Grid Laboratory, Open Science Grid, TeraGrid, Center for Enabling Distributed Petascale Science, and Center for Robust Decision making on Climate and Energy Policy

- Lead establishment of international Globus Alliance open source community, and development of the Globus Toolkit and Globus Online services, from inception to broad adoption
- Establish the Open Grid Forum, and lead national and international projects and organizations
- Serve on national and international advisory committees, including the US Ocean Observatory Initiative, UK eScience Program, and New Zealand eResearch program
- Supervise the work of research staff and graduate students
- Teach graduate and undergraduate classes in computer science

1985 - 1998 Imperial College London, U.K.

*Research Associate, Department of Computing*

- Conduct research in concurrent logic programming systems
- Develop programming language technology, commercialized as Strand

## OTHER PROFESSIONAL EXPERIENCE

Founder, Board Member, Chief Open Source Strategist, Univa Corporation. Founder and Chairman of the Board, Praedictus Climate Solutions.

Technical Advisory Board, Uptake (2016-), EMC/Dell Corporation (2010-), CancerIQ (2014-2015), IOCOM Corporation (2005-2009), Entropia (2000-2004)

## PUBLICATIONS AND PRESENTATIONS

More than 500 article and technical reports, and seven books, in distributed and parallel computing, computational science, and programming languages. More than 100 keynote talks and seminars worldwide. See https://www.researchgate.net/profile/Ian_Foster/publications/

*Cloud Computing for Science and Engineering*, I. Foster and D. Gannon, MIT Press, 2017.

*Big Data and Social Science*, I. Foster et al., CRC Press, 2016.

*The Grid: Blueprint for a New Computing Infrastructure*, I. Foster and C. Kesselman (Eds), Morgan-Kaufmann, 1999 and 2003 (2nd edition).

*Designing and Building Parallel Programs: Concepts and Tools for Parallel Software Engineering*, I. Foster, Addison-Wesley, 1995.

## SELECTED RECOGNITION

Euro-Par Achievement Award, 2017; IEEE TCSC Award for Excellence in Scalable Computing, 2014; Inaugural ACM HPDC Lifetime Achievement Award, 2012; IEEE Tsutomu Kanai Award, 2011; D.Sc. (Honoris Causa), CINVESTAV, Mexico, 2010; Fellow, Association for Computing Machinery, 2009; GridWorld "Industry Leadership Award," 2006; Network World's 50 Most Powerful People in Networking, 2005; D.Sc (Honoris Causa), University of Canterbury, NZ, 2005; InfoWorld Innovator, 2003, 2004, 2005; Fellow, American Association for the Advancement of Science, 2004; R&D Magazine Innovator of the Year, 2003; University of Chicago Distinguished Service Award, 2003; MIT Technology Review, one of "Ten Technologies That Will Change the World," 2003; British Computer Society Lovelace Medal, 2002; Fellow, British Computer Society, 2002; R&D100 "Most Promising New Technology" Award, 2002; Gordon Bell Award, 2001; Global Information Infrastructure "Next Generation" Award, 1997; Best Paper Award, 1995 Supercomputing Conference; British Computer Society Award for Technical Innovation, 1989.