

James Cowling

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Research Interests

My primary research interests lie in distributed systems, particularly with respect to reliability and fault tolerance. I am currently also exploring research in multi-core computing, and the application of distributed systems technologies to provide efficient large-scale concurrency, while preserving consistency guarantees. I have conducted previous work in wireless networking and cellular communications.

Education

Massachusetts Institute of Technology (MIT)

PhD, Electrical Engineering and Computer Science

Programming Methodology Group

Computer Science and Artificial Intelligence Laboratory

Commenced Sept 2005 (completed MS May 2007)

GPA 5.0 (out of possible 5.0)

The University of Sydney

Bachelor of Advanced Computer Science and Technology (Hons.)

Feb 2000 – Nov 2004

First Class Honours with University Medal

Honours Grade: 97.0 (out of possible 100.0)

Equiv. GPA: 5.0 (out of possible 5.0)

The University of California, San Diego

Academic Exchange Student, Computer Science and Engineering

Sept 2002 – June 2003

GPA 4.0 (out of possible 4.0)

Publications

Daniel Myers, Jennifer Carlisle, James Cowling and Barbara Liskov, “[MapJAX: Data Structure Abstractions for Asynchronous Web Applications](#)”, In Proc. of the 2007 USENIX Annual Technical Conference. Santa Clara, CA, USA. June 2007.

James Cowling, “[HQ Replication](#)”, Masters Thesis. MIT CSAIL. Cambridge, MA, USA. May 2007.

James Cowling, Daniel Myers, Barbara Liskov, Rodrigo Rodrigues and Liuba Shrira, “[HQ Replication: Properties and Optimizations](#)”, MIT Technical Report MIT-CSAIL-TR-2007-009. Cambridge, MA, USA. February 2007

James Cowling, Daniel Myers, Barbara Liskov, Rodrigo Rodrigues and Liuba Shrira, “[HQ Replication: A Hybrid Quorum Protocol for Byzantine Fault Tolerance](#)”, In Proc. of the Seventh Symposium on Operating Systems Design and Implementation (OSDI '06). Seattle, WA, USA. November 2006.

James Cowling and Bjorn Landfeldt, “[Dynamic Location Management in Heterogeneous Cellular Networks](#)”, Honours Thesis, The University of Sydney. Sydney, NSW, Australia. November 2004.

Awards/Achievements

Awarded the University of Sydney Convocation Medal for Exceptional Contributions to the Life of the University	2005
Recipient of Fulbright Scholarship (Postgraduate Award in Technology and Communications)	2004
Awarded the University Medal in Computer Science	2004
Awarded Best Honours Student in Computer Science	2004
Awarded Soprano Software Engineering Prize for best thesis in Computer Science Honours	2004
Awarded the Allan Bromley Prize at The University of Sydney	2004
Awarded Sydney University Honours Scholarship, with merit	2004
Recipient of School of IT Vacation Scholarship	2003
Awarded International Resident of the Year at the University of California, San Diego	2003
Elected member of the National Society of Collegiate Scholars in USA	2003
Awarded International Exchange Scholarship to University of California	2002
Awarded Outstanding Tutor in Computer Science	2002
Awarded G.S. Caird Scholarship in Computer Science	2002
Awarded Foundation for Information Technology Prize for Excellence in Computer Science	2002
Received Dean's Scholarship in Science for the highest ranked student in the Science faculty of the University of Sydney	2001
Inducted into Golden Key International Honour Society	2001
Awarded Outstanding Mentor in Sydney University Computer Science Mentoring Program	2001
Elected honorary student member of the Australian Computer Society	2001
Placed on Dean's list of Excellence in Academic Performance	2000
Awarded Sir William Tyree Scholarship in Computer Science at The University of Sydney	2000 – 2004
Inducted into University of Sydney Talented Student Program	2000
Presence on the Dean's High Honour List in Computer Science at The University of Sydney	2000 – 2004

Work Experience

National ICT Australia (NICTA)

Research Engineer 11/2004 – 3/2005

Project Nightingale

Conducting research project into Location Management in Cellular Networks. Establishing test data for network research community and continuing research from honours thesis work.

Research Engineer 4/2005 – 8/2005

Office in a Box

Analysis of telecommunications protocol efficiency and suitability for development. Implementation of proposed modifications to existing communication protocols.

The University of Sydney

Vacation Scholar, School of I.T. 11/2003 – 3/2004

Simulation and technical development of Quality of Service in wireless networks.

Web Officer, Marketing and Recruitment Unit 10/2003 – 12/2003

Overseeing the development of a large website project promoting the university to HSC students.

Academic Staff, School of I.T. 7/2003 – 7/2004
Tutoring three second year concurrent programming classes.

Student Advisor, Marketing and Recruitment Unit 9/2001 – 11/2004
Writing and presenting speeches to large groups of high school students, authoring student magazine articles, manning help lines, liaising between students and university administration, organising promotional events.

Mentor & Tutor, Basser Department of Computer Science 2/2001 – 11/2001
Tutoring advanced computer science and mentoring first year computer science students.

Fusion Hit Web Design

Director and Head of Programming 12/2000 – 2005
Web development for small to medium businesses in addition to general business administration.

Private Work

Tutoring 3/2000 – 11/2001
Teaching all levels of mathematics to final-year high school students

Community Service

Commissioner for the MIT CSAIL Lab Olympics 2008.

President of MIT Computer Science and AI Lab Student Committee, 2007.

Vice-President and co-founder of Sydney University Beats Society, a non-profit society formed to provide entertainment for students and gain exposure to student DJs through club sponsored events – membership ~500.

Student Liason Representative for 2004 Computer Science and Information Systems honours students.

Volunteer work for international community at The University of California, San Diego. Organised yearbook, student formal, awards presentation ceremony and culture nights.

Participated in Computer Science Mentoring Program to guide and assist students making the transition from secondary school to a university degree in Computer Science.

Participated in Guide-a-Student Program to take secondary school students around campus, accustoming them to university life.

Assisted in the running of International Children's Day 2000, 2001.