Curriculum Vitae

Name:	Jonathan Chin	**Email Address:**	jon-cv@earth.li
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	Bermondsey		
	London	**Citizenship:**	British Citizen
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		Date of Birth:	23rd June 1978

References available on request.

Employment history

January 2006 – present : Software developer, Morgan Stanley

- Worked in the Interest Rate Derivatives IT group to support and develop STS, an internal system for trading, booking, and risk-managing interest rate derivatives ranging from vanilla swaps to exotic/hybrid instruments; primarily supported the inflation desk.

- Worked closely with trading desk, quants, and controllers, on problems ranging from improving P&L attribution for inflation derivatives to development of a system for automatically moving risk between legal entities to satisfy regulatory requirements.

- Development of client and server code was primarily in A+ (a dialect of APL), with occasional debugging of C++ or perl.

October 2003 – December 2005 : EPSRC Research Fellow, University College London

- Worked on a variety of techniques for modelling mesoscale fluid flow, including cellular automata and PDEs (lattice Boltzmann algorithm), and a small amount of work with stochastic models (Dissipative Particle Dynamics).

- Developed novel analysis and visualization tools for high performance computer simulations of complex fluids, mainly using C, Perl, and OpenGL.

- Participated in the development of a computational grid for simulations, as part of the RealityGrid project, using the Globus and OGSI::Lite toolkits.

- Designed and ran the largest CFD simulations of their kind as part of the team for the TeraGyroid project, in which calculations and collaborative real-time visualization were performed interactively across a computational grid formed by federating supercomputer facilities in the UK with the TeraGrid in the USA, and using the AccessGrid multicast teleconferencing system to permit sites around the world to participate or watch. The project won the HPC Challenge award at SuperComputing 2003, and an "Integrated Data and Information Management" award at the International Supercomputer Conference in 2004.

March 2001–September 2003 : Industrial placement, Schlumberger Cambridge Research.

- Part-time collaboration on oilfield applications of my PhD work.

Summer 2000 : Vacation Student, Schlumberger Cambridge Research.

- Developed and used a lattice Boltzmann code for investigation of viscous fingering effects in porous media.

Summer 1999 : Vacation Student, Queen Mary, University of London.

- Developed a parallel lattice-Boltzmann program for modelling mesoscale multicomponent fluid flow, which ran on SGI Origin2000 and Cray T3E architectures.

Summer 1996 and 1997 : Vacation Student, AEA Technology.

- Worked with the Scanning Probe Microscopy division to develop simulation software, and used AEAT's CFX computational fluid dynamics simulation package to model flow around a modified atomic force microscopy probe.

Education

October 2000-2003 : PhD, University of London

- Worked at Queen Mary, University of London and UCL.

- Implemented and used the lattice Boltzmann algorithm for simulating complex fluids, such as multi-component mixtures, surfactant systems, or non-Newtonian fluids, on a variety of architectures from workstations to massively parallel hardware using MPI. One of the codes was placed in the highest scalability category on the HPCx supercomputer.

- Investigated industrial applications of these codes to problems in polymer science and oil well modelling, in collaboration with Schlumberger Cambridge Research and Huntsman Polyurethanes.

- Awarded the Brewin Research Prize in 2001

- Ran undergraduate statistical mechanics problem classes in 2001 and 2002; ran the "mesoscale methods" practical sessions of the CCP5 Molecular Simulation Summer School from 2002-2004.

- Thesis, "Mesoscale fluid simulation with the Lattice Boltzmann Method", examined by viva voce in October 2005.

1996 − 2000 : Keble College, University of Oxford

- Awarded first-class Master of Physics (MPhys) degree.

- Spent a year as the Sysadmin Coordinator of the University Computer Society, heading a team of systems administrators running a network of Intel and Sparc64 Linux machines to handle shell access, web hosting and email for around 100 users.

1989 − 1996 : Belfast Royal Academy

- A-levels, 1996

  - Grade A in each of Biology, Chemistry, Physics, and Mathematics.
  - Scored one of top 5 marks in examining board for Mathematics; awarded a Hans Sloane prize for attaining one of the three highest combined marks in Chemistry, Physics, and Biology in Northern Ireland.

- Awarded a Royal Institution / Association for Science Education scholarship to attend the International Science School in Sydney, 1995.

- GCSEs, 1994-1995

  - 8 grade A*, 4 grade A.
  - First or joint first place in examining board for each of Technology, Physics, and Computer Studies.

Skills

- I am familiar with programming in C and Perl on a variety of operating systems: primarily Linux, but I have also worked under MacOS X, FreeBSD, Cygwin, Solaris, SunOS, IRIX, AIX, and Tru64. I have also programmed extensively in A+, 68000 assembly language and Fortran 90.

- I am familiar with standard UNIX tools such as make, autoconf, CVS, bash, zsh, or vi, and with the basic administration of services such as NFS. I have programmed using the MPI, SOAP::Lite, OpenGL, and VTK toolkits.

- I have acted as a referee for several journals, including Physica A, Phil. Trans. R. Soc. A., and Computing in Science and Engineering.

- I maintain several modules on CPAN, both pure Perl and XS-based.

Publications

- J. Chin, M. J. Harvey, S. Jha, P. V. Coveney, Scientific Grid Computing: The first generation. *Computing in Science and Engineering* **7**, 24–32 (2005)

- P. V. Coveney, J. Vicary, J. Chin, M. J. Harvey, WEDS: a Web Services-based environment for distributed simulation. *Phil. Trans. R. Soc. A* **363**, 1807–1816 (2005)

- J. Harting, J. Chin, M. Venturoli, P. V. Coveney, Large-scale lattice Boltzmann simulations of complex fluids: advances through the advent of computational Grids. *Phil. Trans. R. Soc. A* **363**, 1895–1915 (2005)

- K. R. Mayes, M. Lujan, G. D. Riley, J. Chin, P. V. Coveney, J. R. Gurd, Towards performance control on the Grid. *Phil. Trans. R. Soc. A* **363**, 1793–1805 (2005)

- J. Harting, M. J. Harvey, J. Chin, P. V. Coveney, Detection and tracking of defects in the gyroid mesophase. *Comp. Phys. Comm.* **165**, 97–109 (2005)

- P. Grosfils, J.-P. Boon, J. Chin, E. S. Boek, Structural and dynamical characterization of Hele-Shaw viscous fingering. *Phil. Trans.: Mat. Phys. Eng. Sci.* **362**, 1723 (2004)

- J. Chin, J. Harting, S. Jha, P. V. Coveney, A. R. Porter, S. M. Pickles, Steering in computational science: mesoscale modelling and simulation . *Contemporary Physics* **44**, 417 (2003)

- S. M. Pickles, R. J. Blake, B. M. Boghosian, J. M. Brooke, J. Chin, P. E. L. Clarke, P. V. Coveney, N. Gonzalez-Segredo, R. Haines, J. Harting, M. Harvey, M. A. S. Jones, M. McKeown, R. L. Pinning, A. R. Porter, K. Roy, M. Riding, The TeraGyroid Experiment. *Proceedings of GGF 10* (2004)

- P. J. Love, M. Nekovee, P. V. Coveney, J. Chin, N. Gonzalez-Segredo, J. M. R. Martin, Simulations of amphiphilic fluids using mesoscale lattice-Boltzmann and lattice-gas methods. *Comp. Phys. Comm.* **153**, 340 (2003)

- E. S. Boek, J. Chin, P. V. Coveney, Lattice Boltzmann simulation of the flow of non-Newtonian fluids in porous media . *Int. J. Mod. Phys. B* **17**, 99 (2003)

- J. Chin, P. V. Coveney, Lattice Boltzmann study of spinodal decomposition. *Phys. Rev. E* **66**, **016303** (2002)

- J. Chin, E. S. Boek, P. V. Coveney, Lattice Boltzmann simulation of the flow of binary immiscible fluids with different viscosities using the Shan-Chen microscopic interaction model . *Phil. Trans. R. Soc. Lond. A* **360**, 547 (2002)

- M. Nekovee, J. Chin, N. Gonzalez-Segredo, P. V. Coveney, A parallel lattice-Boltzmann method for large scale simulations of complex fluids . *Proceedings of the Fourth UNAM Supercomputing Conference* (2001)

- M. Nekovee, J. Chin, P. V. Coveney, Massively parallel mesoscopic simulations of complex fluids . *Proceedings of UCLse/UK Sim. Conference on Simulation* , 11 (1999)

Talks

- *Chirality and Curvature in the Gyroid Mesophase*, DSFD 2005, Kyoto, August 2005

- *Coarse-graining and renormalization in cluster formation and hydrodynamics*, ICMS workshop on Coagulation and Fragmentation Processes, Edinburgh, July 2005

- *RealityGrid and TeraGyroid*, JCSR Visualization User Needs Workshop, Manchester, October 2004

- *The TeraGyroid Project: Collaborative steering and visualization in an HPC Grid for modelling complex fluids*, UK eScience All Hands Meeting, Nottingham, September 2004

- *Simulated behaviour of a self-assembling gyroid surfactant mesophase*, DSFD 2004, Boston, August 2004

- *Simple OpenGL with OpenGL::Simple*, London Perl Mongers technical session, London, July 2004

- *HPC in modelling complex fluids*, Royal Society of Chemistry symposium, Imperial College, London, June 2004

- *HPC in modelling complex fluids*, HPCx Industry Day, Daresbury Laboratory, April 2004

- *Towards Tractable Toolkits for the Grid: a plea for lightweight, usable middleware*, Workshop on Requirements Capture for Collaboration in eScience, National eScience Centre, Edinburgh, January 2004

- *Steering and scripting of lattice Boltzmann simulations*, CCP5 Lattice Boltzmann Workshop, Daresbury Laboratory, October 2003

- *Towards Grid-enabled, scriptable, componentized software for lattice Boltzmann simulations*, DSFD 2003, Beirut, August 2003

- *TeraGyroid: Grid-based Lattice-Boltzmann simulations of Defect Dynamics in Amphiphilic Liquid Crystals*, Demo session, Supercomputing 2003, Phoenix, AZ, November 2003

- *Application Steering in a Collaborative Environment*, SCGlobal, Phoenix AZ and AccessGrid, November 2003

- *Lattice Boltzmann simulation of the flow of non-Newtonian fluids in porous media*, DSFD 2002, Shanghai, August 2002

- *The problem of stability in lattice-Boltzmann algorithms and possible ways to cure it*, London Mathematical Society workshop on mesoscale methods, Imperial College, London, February 2002