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## Ian Kelley

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### Personal Details & Contact Information

- *Removed from website version of resume, available upon request. More info at <http://www.kelley.tv/>*
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### Current Employment

**Postdoctoral Research Fellow**, May 2007 - present

*Cardiff School of Computer Science and Informatics, <http://www.cs.cf.ac.uk/>  
Cardiff University, Cardiff, UK*

- Research Fellow in the European Union Framework Seven “European Desktop Grid Infrastructure” (EDGI) project<sup>1</sup>. EDGI builds on the strengths of the successful EDGeS project to expand European Desktop Grid usage. Specifically, EDGI aims to move many EDGeS services forward into production and expand the infrastructure for long-term sustainability.
  - Develop and maintain the Data Access software (Attic) prototyped in EDGeS, move it towards a production system for Desktop Grid data management.
  - Represent Cardiff University in the project (voting member) and serve as Cardiff’s co-PI for the project. Helped write the EDGI proposal and shape the research directions and Cardiff’s involvement.
  - Publish and disseminate research results, manage Cardiff’s involvement in both the SA1 and JRA1 work-packages.
- Research Associate in the European Union Framework Seven “Enabling Desktop Grids for e-Science” (EDGeS) project<sup>2</sup>, focused on transitioning jobs and data from high-performance Service Grids to volunteer Desktop Grid infrastructures.
  - Managed and led one of three Joint Research Activities in the project, which focused on data-access and included man-month efforts from six institutions. Post involved overseeing local staff and students, as well as organizing and fulfilling project deliverables. Additional duties included representing and presenting for both Cardiff and the work-package at project meetings and EU reviews.
  - Represented Cardiff in the project, acted as voting representative on the Ethics Board, Technical Board, and Project Board. Helped write the proposal and served as Cardiff University’s co-PI for the project.
  - Researched and published new work, including technical development, and responsibility for managing and fulfilling the data-related tasks associated with the project.
- Project Scientific Advisor (part-time) to the “Workflows Hosted in Portals” (WHIP) OMII-UK computer science grant. WHIP focused on integrating scientific portal technologies with client-side workflow toolkits.
  - Provided scientific and technical guidance to project participants, leading day-to-day development goals and efforts, including making recommendations on future directions and reviewing of project deliverables.
  - Oversaw the general progress of the project, ensuring there were regular reports and sufficient community exposure through academic articles in conferences and journals.
  - Represented the project at national and international events, as well as forming collaborations with colleagues both local to Cardiff University and internationally who were working on related projects.

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<sup>1</sup><http://edgi-project.eu/>

<sup>2</sup><http://edges-grid.eu/>

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## Previous Employment

**Software Engineer**, Oct 2003 – June 2008

*Center for Computation and Technology*, <http://www.cct.lsu.edu/>

Louisiana State University, Baton Rouge, LA, USA

The Louisiana Center for Computation and Technology is an interdisciplinary center focusing on the development of leading edge software technology. Its aims are to develop and facilitate new technologies and to work with industry and educational institutions to foster economic growth and academic excellence in Louisiana.

- Lead of the Collaborative Environments Group, which focuses on building application specific and generic Java portal solutions for high-performance application groups.
  - Designed and developed Java portlet components for our portal framework, GridSphere. Saw projects through the entire development process from initial design to product deployment.
  - Collaborated closely with partner institutions, notably the Albert Einstein Institute, to develop generic solutions that can be used by the wider research community and industry.
  - Held extensive talks with current user bases as well as potential portal users and developers at other departments on campus to isolate requirements and drive development.
  - Demonstrated the portal by giving presentations and live demos. Hosted tutorials to teach developers how to create their own custom portal solutions.
  - Worked constantly to expand the group by meeting with other centers and departments around campus to plan possible collaborations and funding proposals.
  - Hired and supervised graduate student workers at LSU, as well as promoted collaboration with other institutions, coordinating cross-institutional portal development.
- Member of the Grid Research Group, which focuses on building Grid middle-ware and tools to integrate high-performance resources into a seamless system accessible to developers and users.
  - Integrated the 1024 processor supercomputer at LSU into a Grid environment and set it up to be a part of a large international Grid computing testbed. I continue to be involved in its Grid integration as an advisor.
  - Deployed a small Grid for researchers to use as a testbed for the development and deployment of Grid tools. Configured and setup a certificate authority to handle security.
  - Advised on many Grid research and deployment tasks, acting in my role as one of the few "grid experts" at our center.

**Lead Architect**, Dec 1999 – Feb 2004

*Living Reviews in Relativity*, <http://www.livingreviews.org/>

Max-Planck-Institute für Gravitationsphysik, (Albert Einstein Institute), Golm, Germany

Living Reviews in Relativity is an exclusively WWW-based, peer-reviewed journal, publishing reviews of research in all areas of relativity. Articles are solicited from leading authorities and are intended for physicists at or above the graduate-student level. Living Reviews is unique in maintaining a suite of high-quality reviews; its articles are subjected to strict peer-review and are kept up-to-date by the authors.

Contributions to and responsibilities in the project:

- Directed and lent advice to student helpers with their projects and developments. Collaborated with the MoWGLI Project to design and implement many new features, such as dynamic creation of web site content through use of XML Metadata and style-sheets.
- Responsible for the technical development and maintenance of the Living Reviews software and supporting technical infrastructure.
- Investigated and implemented new technologies, such as XML, XSLT, and Java Swing. Gave presentations and tutorials to affiliated groups about said technologies.
- Provided technical consultation on the development of a generic electronic journal processing toolkit which is based on the Living Reviews software and is currently under development by the Heinz Nixdorf Center for Information Management in the Max Planck Society (ZIM).
- Extended and modularized article conversion software which facilitated the expansion of the Living Reviews software package to a new XML Publishing Toolkit and accommodated the use of the software by other journals, such as Solar Physics.

### **Research Programmer**, Jan 2002 – Oct 2003

*GridLab Project*, <http://www.gridlab.org/>

Max-Planck-Institute für Gravitationsphysik, (Albert Einstein Institute), Golm, Germany

The GridLab project is an E.U. funded collaboration between eight European sites to develop easy-to-use, flexible, generic and modular tools and capabilities to enable applications to make innovative use of global computing resources on the Grid.

Contributions to and responsibilities in the project:

- Designed and developed a collection of grid-related tools and a testing framework, GridTools, which was used for supporting demos at various international conferences such as CCGRID03 and Supercomputing 2002.
- Worked extensively with end-users to pinpoint their applications' requirements and to steer the development of GridLab services and tools toward providing end-user functionality and usability.
- Helped to develop and design application specific components for use within the GridLab and ASC Portal projects.
- Contributed to the design of a multi-tier Portlet framework/container that is implemented in Java and uses web technologies such as JSP and XML.
- Provided technical assistance and advice with the creation and use of the Global Grid Testbed, which was used to win three prizes at Supercomputing 2002. I worked closely with colleagues in the Czech Republic and was involved for the duration of the project until its successful completion.

### **Scientific Application Developer**, Jan 2000 – Oct 2003

*CactusCode Project*, <http://www.cactuscode.org/>

Max-Planck-Institute für Gravitationsphysik, (Albert Einstein Institute), Golm, Germany

Cactus is an open source problem solving environment designed for scientists and engineers. Its modular structure easily enables parallel computation across different architectures and collaborative code development between different groups. Cactus originated in the academic research community, where it was developed and used over many years by a large international collaboration of physicists and computational scientists.

Contributions to and responsibilities in the project:

- Developed a system to aggregate individual Cactus module's (Thorns) documentation into a central and standardized form using templates, thereby greatly improving access to information for Cactus developers and users.
- Used a combination of Perl, C, shell scripting and GNU Make to develop new, and improve upon many existing, utility programs for the Cactus Flesh. Enhanced and created new Cactus modules to interact with our web-Portal, enabling scientists to monitor and remotely manage their running simulations.
- Brought dynamic content to and streamlined the CactusCode website by writing many CGI programs and by implementing Server Side Includes (SSI).
- Actively analyzed, tracked and solved user submitted bug-reports using Gnats bug tracking system, providing technical help to a world-wide community of Cactus users and developers.
- Worked very independently and showed my creativity by bringing in new features to Cactus that had not been thought of previously.

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## **Education**

- early 2012 (expected), Ph.D., Computer Science, Cardiff University, United Kingdom.
- 1999, B.A., Political Science, University of Washington, Seattle, USA.

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## **Grants and Funding**

- “European Desktop Grid Initiative” (EDGI). 2.4M€ EU FP7 project with 10 total partners. I served as co-manager/co-PI for Cardiff University under Ian Taylor. Project coordinator is SZTAKI. 2010-2012.
- “Enabling Desktop Grids for e-Science” (EDGeS). 2.9M€ EU Framework 7 project with nine total partners. I served as co-manager/co-PI for Cardiff University under Ian Taylor, as well as head of the Data Management Joint Research Activity (JRA3). Project coordinator was SZTAKI. 2008-2010.
- “WHIP: The myExperiment workflow companion.” £177K OMII UK project. I co-wrote proposal with PI Ian Taylor, and acted as co-manager and advisor. 2007-2008.
- “GGF Grid Portal Standardization: Towards providing common portal services for Grid operations.” £4,500 GridNet2 grant I received for travel expenses. 2006-2007.
- Global Grid Forum 17 (GGF17) Student Travel Scholarship. Paid travel and accommodation. 2006.

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## **Prizes and Awards**

- Active member of the team that won the HPC Challenge Awards (Supercomputing 2002, November 2002) for *Most Geographically Distributed Applications* and *Most Heterogeneous Set of Platforms*.
- Active member of the team that won the High-performance bandwidth challenge (Supercomputing 2002, November 2002), Highest Performing Application.

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## Computer Certifications

- Red Hat Certified Engineer (RHCE) for Redhat 8.0. Certificate Number: 808003664707814  
Awarded by Redhat Inc., the largest distributor of Linux in the world.
- Certificate in MPI, OpenMP and Advanced Topics in Parallel Programming.  
Awarded for a course on advanced topics in parallel programming by HLRS, Stuttgart.

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## Additional Training and Conferences

XML Europe 2000, XML Europe 2001, GGF 5, HPDC 11, CCGrid 2002, Supercomputing 2002, GGF 8, HPDC 12, Supercomputing 2003, GGF 10, Supercomputing 2004, GGF 13, Supercomputing 2005, GGF 17, OGF 18, Supercomputing 2006, OGF20, OGF21, PCGrid 2011, Supercomputing 2011

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## Computer-Related Skills

Working at Cardiff University, LSU and the AEI have been challenging and rewarding experiences. The fast paced way in which Web, Grid, and now Cloud technologies have evolved has kept me interested and constantly improving my skills and learning new technologies that keep up-to-date with the latest software developments and research directions. By being involved in so many diverse projects, I have been able to become a very flexible and highly independent worker who can manage multiple unrelated tasks simultaneously and receive new responsibilities easily.

Some of the skills that I have acquired over my years of experience working with computers are listed below. The list is not exhaustive and seeks to give a brief overview of some of the software suites and technologies I have used and have proficiency in.

- Operating Systems: Linux/Unix, Mac OSX, Windows
- Programming Languages: C#, Java/JSP, Perl 5, JavaScript, [and previously C/C++]
- Programming Technologies / Methodologies : J2EE, Design Patterns, RDMS
- XML Technologies: Scheme, DTD, DOM, SAX, XSL/T, XML-RPC, MATHML, XPath
- Other: Apache, CVS, Maven, LaTeX/BibTeX, Majordomo, Gnats, Jira, Samba, Make, Ant, Tomcat, JIRA, MySQL, Globus, MyProxy, PKI, SharePoint, Silverlight, HTML5

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## Book Chapters / Papers / Technical Reports

- Ian Kelley and Ian Taylor. “A Peer-to-Peer Architecture for Data-Intensive Cycle Sharing.” The Network-Aware Data Management Workshop held in conjunction with the IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC’11). 2011.
- Tamas Kiss, Ian Kelley, and Peter Kacsuk. “Porting computation and data intensive applications to distributed computing infrastructures incorporating desktop grids.” In The International Symposium on Grids and Clouds and the Open Grid Forum, PoS(ISGC 2011 & OGF 31)060, 2011.
- Abdelhamid Elwaer, Andrew Harrison, Ian Kelley, and Ian Taylor. “Attic: A Case Study for Distributing Data in BOINC Projects.” Cardiff University, United Kingdom. 5th Workshop on Desktop Grids and Volunteer Computing Systems (PCGrid 2011). 2011.
- Carlo Mastroianni, Pasquale Cozza, Domenico Talia, Ian Kelley, and Ian Taylor. “A Scalable Super-Peer Approach for Public Scientific Computation.” Journal of Future Generation Computer Systems. Volume 25, Issue 3 (March 2009), Pages 213-223, 2009.
- Pasquale Cozza, Ian Kelley, Carlo Mastroianni, Domenico Talia, and Ian Taylor. “Cache-Enabled Super-Peer Overlays for Multiple Job Submission on Grids.” In: Grid Middleware and Services: Challenges and Solutions, pp. 155-169. Springer, Domenico Talia, Ramin Yahyapour, and Wolfgang Ziegler (Editors), Springer, 2008.
- Ian Kelley and Ian Taylor. “Bridging the Data Management Gap Between Service and Desktop Grids.” In: Distributed and Parallel Systems In Focus: Desktop Grid Computing, Pter Kacsuk, Rbert Lovas and Zsolt Nmeth (Editors), Springer, 2008.
- Daniela Barbalace, Ian Kelley, Carlo Mastroianni, Domenico Talia, and Ian Taylor. “A data sharing protocol for Desktop Grid projects.” CoreGRID Report TR-0165, July 21, 2008
- Stavros Isaiadis, Vladimir Getov, Ian Kelley and Ian Taylor. “Dynamic service-based integration of mobile clusters in grids.” CoreGRID Report TR-0094, February 25, 2008

- Fernando Costa, Luis Silva, Gilles Fedak, and Ian Kelley. "Optimizing Data Distribution in Desktop Grid Platforms." In: Parallel Processing Letters (PPL), Special Issue on Grid Architectural Issues: Scalability, Dependability, Adaptability. Volume: 18, Issue: 3. September, 2008.
- Fernando Costa, Luis Silva, Ian Kelley, Ian Taylor. "P2P Techniques for Data Distribution in Desktop Grid Computing Platforms." In: Making Grids Work, Marco Danelutto, Paraskevi Fragopoulou and Vladimir Getov (Editors), Springer, 2008.
- Fernando Costa, Luis Silva, Gilles Fedak, and Ian Kelley. "Optimizing Data Distribution in Desktop Grid Platforms." In: Parallel Processing Letters (PPL), Special Issue on Grid Architectural Issues: Scalability, Dependability, Adaptability. Volume: 18, Issue: 3. September, 2008.
- Z. Balaton, Z. Farkas, G. Gombas, P. Kacsuk, R. Lovas, A. C. Marosi, A. Emmen, G. Terstyanszky, T. Kiss, I. Kelley, I. Taylor, O. Lodygensky, M. Cardenas-Montes, G. Fedak, and F. Araujo, "EDGEs: The common boundary between service and desktop grids." Parallel Processing Letters (PPL), Special Issue on Grid Architectural Issues: Scalability, Dependability, Adaptability. Volume: 18, Issue: 3. September, 2008.
- Z. Balaton, Z. Farkas, G. Gombas, P. Kacsuk, R. Lovas, A. C. Marosi, A. Emmen, G. Terstyanszky, T. Kiss, I. Kelley, I. Taylor, O. Lodygensky, M. Cardenas-Montes, G. Fedak, and F. Araujo, "EDGEs: A bridge between desktop grids and service grids," in The 3rd ChinaGrid Annual Conference (ChinaGrid 2008), August 2008.
- M. Cardenas-Montes, A. Emmen, A. C. Marosi, F. Araujo, G. Gombas, G. Fedak, I. Kelley, I. Taylor, O. Lodygensky, P. Kacsuk, R. Lovas, T. Kiss, Z. Balaton, Z. Farkas, and G. Terstyanszky, "EDGEs: bridging desktop and service grids," in 2nd Iberian Grid Infrastructure Conference (IBERGRID 2008), 2008.
- Pasquale Cozza, Ian Kelley, Carlo Mastroianni, Domenico Talia, and Ian Taylor. "Use of P2P Overlays for Distributed Data Caching in Public Scientific Computing." CoreGRID Report TR-0112. October, 2007.
- Chongjie Zhang, Ian Kelley, and Gabrielle Allen. "Grid Portal Solutions: A Comparison of GridPortlets and OGCE." Center for Computation and Technology, Louisiana State University. GCE05. Concurrency and Computation: Practice and Experience. 19:17391748; 2007.
- Andrew Harrison, Ian Kelley, Kurt Mueller, Matthew Shields, and Ian Taylor. "Workflows Hosted In Portals." In Proceedings of the UK eScience All Hands Meeting. September 10-13, 2007.
- Andrew Harrison, Ian Kelley, Emil Mieilica, Adina Riposan, and Ian Taylor. "MGFM - Mobile Grid for Fleet Management." In 6th IEEE Communications International Conference. 2006.
- Andrew Harrison, Ian Kelley, Emil Mieilica, Adina Riposan and Ian Taylor. "Mobile Peer-To-Grid Architecture for Paramedical Emergency Operations Paramedical Emergency Operations." In proceedings of HealthGrid 2006. 2006.
- Andrew Harrison, Ian Kelley, and Ian Taylor. "Workflow-Driven Portals for the Integration of Legacy Applications." In Grid-Enabling Legacy Applications and Supporting End Users Workshop (GELA) within the framework of the 15th IEEE International Symposium on High Performance Distributed Computing, HPDC'15. 2006.
- Chongjie Zhang, Chirag Dekate, Gabrielle Allen, Ian Kelley, Jon MacLaren. "An Application Portal for Collaborative Coastal Modeling." Center for Computation and Technology, Louisiana State University. GCE05. Concurrency and Computation: Practice and Experience Special Issue: Workshop on Grid Computing Portals. 2005.
- Ian Kelley, Oliver Wehrens, Michael Russell, and Jason Novotny. "The Cactus Portal." In proceedings of APAC 05: Advanced Computing, Grid Applications and eResearch, 2005.
- Ruxandra Bondarescu, Gabrielle Allen, Greg Daues, Ian Kelley, Michael Russell, Edward Seidel, John Shalf, and Malcolm Tobias. "The Astrophysics Simulation Collaboratory Portal: a framework for effective distributed research." Future Generation Comp. Syst. 21(2): 259-270. 2005.
- Gabrielle Allen, Kelly Davis, Thomas Dramlitsch, Tom Goodale, Ian Kelley, Gerd Lanfermann, Jason Novotny, Thomas Radke, Kashif Rasul, Michael Russell, Edward Seidel, and Oliver Wehrens. "The GridLab Grid Application Toolkit." HPDC. 2002.