

Curriculum Vitae – Ioan Raicu, Ph.D.

Northwestern University
Department of Electrical Engineering and Computer Science
Center for Ultra-scale Computing and Information Security (CUCIS)



Computing Innovation Fellow

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Education

Ph.D. in Computer Science	University of Chicago	09/2005 – 03/2009
Dissertation:	<i>"Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing"</i>	
Research Advisor:	Ian Foster	
Master of Science in Computer Science	University of Chicago	09/2003 – 06/2005
Thesis:	<i>"A Performance Study of the Globus Toolkit® and Grid Services via DiPerF, an automated Distributed PERformance testing Framework"</i>	
Research Advisor:	Ian Foster	
Master of Science in Computer Science	Wayne State University	09/2000 – 05/2002
Thesis:	<i>"An Empirical Analysis of Internet Protocol version 6 (IPv6)"</i>	
Research Advisor:	Sherali Zeadally	
Bachelor of Science in Computer Science	Wayne State University	09/1997 – 05/2000

Awards

Computation Innovation Fellow	NSF/CRA	08/2009 – 07/2010
Topic:	<i>"Resource Management in Large-Scale Distributed Systems"</i>	
Funding:	\$140,000	
Mentor:	Alok Choudhary, Northwestern University	
More information:	http://cifellows.org/index.html	
GSRP Fellowship	NASA, Ames Research Center	10/2006 – 05/2009
Topic:	<i>"Harnessing Grid Resources to Enable the Dynamic Analysis of Large Astronomy Datasets"</i>	
Funding:	\$84,000	
Fellowship Research Advisor:	Jerry C. Yan, NASA	
More information:	http://fellowships.hq.nasa.gov/gsrp/program/	
Presidential Scholarship	Wayne State University	09/1997 – 05/2000
Description:	Full ride scholarship for undergraduate degree; awarded based on academic achievement.	
Value:	\$20,000	
More information:	http://www.admissions.wayne.edu/counselors/pressscholar.php	

Work Experience

Computation Innovation Fellow	Northwestern Univ., Dept. of Electrical Eng. and Computer Science	08/2009 – 07/2010
Research Visitor	NASA, Ames Research Center, NASA Advanced Supercomputing (NAS)	03/2009 – 05/2009
Teaching/Research Assistant	University of Chicago, Department of Computer Science	09/2003 – 03/2009
Researcher (Internship)	Argonne National Laboratory, Math. and Computer Science Division	Summer 2006
Researcher (Internship)	Argonne National Laboratory, Math. and Computer Science Division	Summer 2005
Researcher (Internship)	Sun Microsystems, Sun Labs & Solaris Networking Technologies	Summer 2003
Teaching Assistant	Purdue University, Department of Computer Science	08/2002 – 05/2003
Adjunct Assistant Professor	Univ. of Michigan, Department of Computer and Information Science	06/2002 – 08/2002
Teaching/Research Assistant	Wayne State University, Department of Computer Science	08/2000 – 08/2002
Researcher (Internship)	Accenture Technology Labs	Summer 2001
System Analyst (Internship)	Ford Motor Company	Summer 1999
Owner	High Teck Computers	01/1997 – 03/2001

Research Experience

Research Interests

Distributed Systems
Grid Computing
Many-Core Computing

Many-Task Computing
Cloud Computing
Peer-to-Peer Systems

Data-Intensive Computing
Supercomputing
Parallel Programming Languages

Proposals

Postdoc: *“Resource Management in Large-Scale Distributed Systems”*

Institution: NSF and CRA, CIFellows
Award: \$140,000
Period: 08/2009 - 07/2010
Collaborators: Ioan Raicu, Alok Choudhary
My role: Primary author of proposal

Fellowship: *“Harnessing Grid Resources to Enable the Dynamic Analysis of Large Astronomy Datasets”*

Institution: NASA, Ames Research Center, Graduate Student Researchers Program
Award: \$84,000
Period: 10/2006 - 5/2009
Collaborators: Ioan Raicu, Ian Foster, Jerry C. Yan
My role: Primary author of yearly proposals

Open Source Software: *“Falcon: A Proposal for Project Globus Incubation”*

Institution: The Globus Alliance
Award: Accepted as a Globus Incubator Project
Period: 11/2007 - Present
Collaborators: Ioan Raicu, Yong Zhao, Catalin Dumitrescu, Ian Foster and Mike Wilde
My role: Primary author of proposal

Publications

Over the past decade, I have co-authored over 90 documents, which received over 800 citations. My [Hirsch index \(H-index\)](#) is 14; the index h is “defined as the number of papers with citation number $\geq h$ ”, and is often used “as a useful index to characterize the scientific output of a researcher” [J. E. Hirsch 2005].

Books

1. **Ioan Raicu**. “*Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing*”, ISBN: 978-3-639-15614-0, VDM Verlag Dr. Muller Publisher, 2009

Journal Articles

2. **Ioan Raicu**, Ian Foster, Mike Wilde, Zhao Zhang, Alex Szalay, Kamil Iskra, Pete Beckman, Yong Zhao, Alok Choudhary, Philip Little, Christopher Moretti, Amitabh Chaudhary, Douglas Thain. “*Middleware Support for Many-Task Computing*”, to appear in Cluster Computing, The Journal of Networks, Software Tools and Applications, 2009
3. Michael Wilde, Ian Foster, Kamil Iskra, Pete Beckman, Zhao Zhang, Allan Espinosa, Mihael Hategan, Ben Clifford, **Ioan Raicu**. “*Parallel Scripting for Applications at the Petascale and Beyond*”, IEEE Computer Nov. 2009 Special Issue on Extreme Scale Computing, 2009
4. Catalin Dumitrescu, **Ioan Raicu**, Ian Foster. “*The Design, Usage, and Performance of GRUBER: A Grid uSLA-based Brokering Infrastructure*”, International Journal of Grid Computing, 2007
5. **Ioan Raicu**, Catalin Dumitrescu, Matei Ripeanu, Ian Foster. “*The Design, Performance, and Use of DiPerF: An automated Distributed PERFORMANCE testing Framework*”, International Journal of Grid Computing, Special Issue on Global and Peer-to-Peer Computing, 2006
6. Catalin Dumitrescu, **Ioan Raicu**, Ian Foster. “*Usage SLA-based Scheduling in Grids*”, Journal on Concurrency and Computation: Practice and Experience, 2006
7. **Ioan Raicu**, Loren Schwiebert, Scott Fowler, Sandeep K.S. Gupta. “*Local Load Balancing for Globally Efficient Routing in Wireless Sensor Networks*”, International Journal of Distributed Sensor Networks, 1: 163–185, 2005
8. Sheralli Zeadally, R. Wasseem, **Ioan Raicu**. “*Comparison of End-System IPv6 Protocol Stacks*”, IEE Proceedings Communications, Special issue on Internet Protocols, Technology and Applications (VoIP), Vol. 151, No. 3, June 2004
9. Sheralli Zeadally, **Ioan Raicu**. “*Evaluating IPV6 on Windows and Solaris*”, IEEE Internet Computing, Volume 7, Issue 3, May June 2003, pp 51 – 57

Book Chapters

10. **Ioan Raicu**, Ian Foster, Yong Zhao, Alex Szalay, Philip Little, Christopher M. Moretti, Amitabh Chaudhary, Douglas Thain. “*Towards Data Intensive Many-Task Computing*”, book chapter in Data Intensive Distributed Computing: Challenges and Solutions for Large-Scale Information Management, IGI Global Publishers, 2009
11. Yong Zhao, **Ioan Raicu**, Ian Foster, Mihael Hategan, Veronika Nefedova, Mike Wilde. “*Realizing Fast, Scalable and Reliable Scientific Computations in Grid Environments*”, book chapter in Grid Computing Research Progress, ISBN: 978-1-60456-404-4, Nova Publisher 2008
12. Catalin Dumitrescu, Jan Dünneweber, Philipp Lüdeking, Sergei Gorlatch, **Ioan Raicu**, Ian Foster. “*Simplifying Grid Application Programming Using Web-Enabled Code Transfer Tools*”. Toward Next Generation Grids, Chapter 6, Springer Verlag, 2007

Conference Papers

13. Michael Wilde, **Ioan Raicu**, Allan Espinosa, Zhao Zhang, Ben Clifford, Mihael Hategan, Kamil Iskra, Pete Beckman, Ian Foster. “*Extreme-scale scripting: Opportunities for large task-parallel applications on petascale computers*”, Scientific Discovery through Advanced Computing Conference (SciDAC09), 2009
14. **Ioan Raicu**, Ian Foster, Yong Zhao, Philip Little, Christopher Moretti, Amitabh Chaudhary, Douglas Thain. “*The Quest for Scalable Support of Data Intensive Workloads in Distributed Systems*”, ACM International Symposium on High Performance Distributed Computing (HPDC09), 2009
15. **Ioan Raicu**, Ian Foster, Yong Zhao. “*Many-Task Computing for Grids and Supercomputers*”, Invited Paper, IEEE Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS08), 2008
16. Ian Foster, Yong Zhao, **Ioan Raicu**, Shiyong Lu. “*Cloud Computing and Grid Computing 360-Degree Compared*”, IEEE Grid Computing Environments (GCE08) 2008
17. **Ioan Raicu**, Zhao Zhang, Mike Wilde, Ian Foster, Pete Beckman, Kamil Iskra, Ben Clifford. “*Towards Loosely-Coupled Programming on Petascale Systems*”, IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SuperComputing/SC08), 2008
18. Zhao Zhang, Allan Espinosa, Kamil Iskra, **Ioan Raicu**, Ian Foster, Michael Wilde. “*Design and Evaluation of a*

Collective I/O Model for Loosely-coupled Petascale Programming", IEEE Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS08), 2008

19. Yong Zhao, **Ioan Raicu**, Ian Foster. "*Scientific Workflow Systems for 21st Century e-Science, New Bottle or New Wine?*", Invited Paper, IEEE Workshop on Scientific Workflows (SWF08) 2008
20. **Ioan Raicu**, Yong Zhao, Ian Foster, Alex Szalay. "*Accelerating Large-scale Data Exploration through Data Diffusion*", IEEE International Workshop on Data-Aware Distributed Computing (DADC08) 2008
21. **Ioan Raicu**, Yong Zhao, Catalin Dumitrescu, Ian Foster, Mike Wilde. "*Falcon: a Fast and Light-weight task executiON framework*", IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SuperComputing/SC07), 2007
22. Yong Zhao, Mihael Hategan, Ben Clifford, Ian Foster, Gregor von Laszewski, **Ioan Raicu**, Tiberiu Stef-Praun, Mike Wilde. "*Swift: Fast, Reliable, Loosely Coupled Parallel Computation*", IEEE Workshop on Scientific Workflows (SWF07) 2007
23. **Ioan Raicu**, Ian Foster, Alex Szalay, Gabriela Turcu. "*AstroPortal: A Science Gateway for Large-scale Astronomy Data Analysis*", TeraGrid Conference 2006, June 2006
24. Alex Szalay, Julian Bunn, Jim Gray, Ian Foster, **Ioan Raicu**. "*The Importance of Data Locality in Distributed Computing Applications*", NSF Workflow Workshop 2006
25. William Allcock, John Bresnahan, Rajkumar Kettimuthu, Michael Link, Catalin Dumitrescu, **Ioan Raicu**, Ian Foster, "*The Globus Striped GridFTP Framework and Server*," sc, p. 54, IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SuperComputing/SC05), 2005
26. Catalin Dumitrescu, **Ioan Raicu**, Ian Foster. "*DI-GRUBER: A Distributed Approach for Grid Resource Brokering*", IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SuperComputing/SC05), 2005
27. Catalin Dumitrescu, **Ioan Raicu**, Ian Foster. "*Performance Measurements in Running Workloads over a Grid*", The 4th International Conference on Grid and Cooperative Computing (GCC 2005)
28. Catalin Dumitrescu, **Ioan Raicu**, Matei Ripeanu, Ian Foster. "*DiPerF: an automated Distributed PERformance testing Framework*", IEEE/ACM GRID04, pp 289 – 296, 2004
29. **Ioan Raicu**, Loren Schwiebert, Scott Fowler, Sandeep K.S. Gupta. "*e3D: An Energy-Efficient Routing Algorithm for Wireless Sensor Networks*", IEEE ISSNIP 2004 (The International Conference on Intelligent Sensors, Sensor Networks and Information Processing), 2004
30. **Ioan Raicu**, Sherali Zeadally. "*Impact of IPv6 on End-User Applications*", IEEE International Conference on Telecommunications 2003, ICT'2003, Volume 2, pp 973 – 980, Feb 2003
31. **Ioan Raicu**, Sherali Zeadally. "*Evaluating IPv4 to IPv6 Transition Mechanisms*", IEEE International Conference on Telecommunications 2003, ICT'2003, Volume 2, pp 1091 – 1098, Feb 2003
32. **Ioan Raicu**. "*Efficient Even Distribution of Power Consumption in Wireless Sensor Networks*", ISCA 18th International Conference on Computers and Their Applications, CATA 2003
33. **Ioan Raicu**, Owen Richter, Loren Schwiebert, Sherali Zeadally. "*Using Wireless Sensor Networks to Narrow the Gap between Low-Level Information and Context-Awareness*", Proceedings of the ISCA 17th International Conference, Computers and their Applications, 2002

Posters / Extended Abstracts

34. **Ioan Raicu**, Yong Zhao, Ian Foster, Mike Wilde, Zhao Zhang, Ben Clifford, Mihael Hategan, Sarah Kenny. "*Managing and Executing Loosely Coupled Large Scale Applications on Clusters, Grids, and Supercomputers*", Extended Abstract, GlobusWorld08, part of Open Source Grid and Cluster Conference 2008
 35. Quan T. Pham, Atilla S. Balkir, Jing Tie, Ian Foster, Mike Wilde, **Ioan Raicu**. "*Data Intensive Scalable Computing on TeraGrid: A Comparison of MapReduce and Swift*", TeraGrid Conference (TG08) 2008
 36. **Ioan Raicu**, Yong Zhao, Ian Foster, Alex Szalay. "*A Data Diffusion Approach to Large Scale Scientific Exploration*", Extended Abstract, Microsoft Research eScience Workshop (MSES07) 2007
 37. Catalin Dumitrescu, Alexandru Iosup, H. Mohamed, Dick H.J. Epema, Matei Ripeanu, Nicolae Tapus, **Ioan Raicu**, Ian Foster. "*ServMark: A Framework for Testing Grids Services*", IEEE Grid 2007
 38. **Ioan Raicu**, Catalin Dumitrescu, Ian Foster. "*Dynamic Resource Provisioning in Grid Environments*", TeraGrid Conference (TG07) 2007
 39. **Ioan Raicu**, Ian Foster, Alex Szalay. "*Harnessing Grid Resources to Enable the Dynamic Analysis of Large Astronomy Datasets*", IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC06), 2006
 40. **Ioan Raicu**. "*Routing Algorithms for Wireless Sensor Networks*", Poster Presentation, Grace Hopper Celebration of Women in Computing (GHC02), 2002
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Presentations

Dissertation/Proposal/Thesis Talks

1.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing, Dissertation Defense	02/2009	University of Chicago
2.	Harnessing Grid Resources with Data Data-Centric Task Farms, PhD Dissertation Proposal	12/2007	University of Chicago
3.	A Performance Study of the Globus Toolkit® and Grid Services via DiPerF, an automated DIstributed PERformance testing Framework, MS Thesis	05/2005	University of Chicago
4.	An Empirical Analysis of Internet Protocol version 6 (IPv6), MS Thesis	04/2002	Wayne State University

Invited Talks

5.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing	03/2009	University of Nebraska at Omaha
6.	The Quest for Scalable Support of Data Intensive Workloads in Distributed Systems	03/2009	Motorola Labs
7.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing	03/2009	Purdue University Calumet
8.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing	03/2009	Colorado State University
9.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing	02/2009	University of Louisiana at Lafayette
10.	Scalable Resource Management in Clouds and Grids	12/2008	Motorola Labs
11.	The Quest for Scalable Support of Data Intensive Applications through Data Diffusion	11/2008	IEEE/ACM SC08 ANL Booth
12.	Falkon, a Fast and Light-weight task executiON framework for Clusters, Grids, and Supercomputers	11/2008	IEEE/ACM SC08 ANL Booth
13.	Running 1 Million Jobs in 10 Minutes via the Falkon Fast and Light-weight task executiON framework	11/2008	IEEE/ACM SC08 Megajob BOF
14.	Cloud Computing and Grid Computing 360-Degree Compared	11/2008	University of Chicago
15.	The Quest for Scalable Support of Data Intensive Applications through Data Diffusion	11/2008	Univ. of Chicago, Petascale Active Data Storage (PADS)
16.	Scalable Resource Management in Clouds and Grids	10/2008	Accenture Technology Labs
17.	Scientific Workflow Systems for 21st Century	9/2008	MWGS08: MidWest Grid School 2008
18.	Harnessing Grid Resources with Data Data-Centric Task Farms	08/2008	Notre Dame University
19.	Accelerating Large-Scale Data Exploration through Data Diffusion	05/2008	DSLW 2008
20.	Harnessing Grid Resources with Data Data-Centric Task Farms	05/2008	NASA ARC
21.	Harnessing Grid Resources with Data Data-Centric Task Farms	04/2008	Hyde Park Global Investments LLC
22.	Accelerating Large Scale Scientific Exploration with Falkon	11/2007	IEEE/ACM SC07 ANL Booth
23.	Falkon: a Fast and Light-weight task executiON framework	05/2007	DSLW 2007
24.	AstroPortal: A Science Gateway for Large-scale Astronomy Data Analysis	02/2007	California Inst. of Tech. AstroGrid 2007
25.	AstroPortal: A Science Gateway for Large-scale Astronomy Data Analysis	11/2006	IEEE/ACM SC06 ANL Booth
26.	Harnessing Grid Resources to Enable the Dynamic Analysis of Large Astronomy Datasets	06/2006	DSLW 2006
27.	Mobile IPv6	09/2003	Sun Microsystems Laboratories
28.	Proximity Detection using Wireless RF Sensor	08/2001	Accenture Technology Labs

Conference/Workshop Talks

29.	The Quest for Scalable Support of Data Intensive Workloads in Distributed	06/2009	ACM HPDC09
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Systems		
30.	Toward Loosely Coupled Programming on Petascale Systems	11/2008 IEEE/ACM SC08
31.	Cloud Computing and Grid Computing 360-Degree Compared	11/2008 IEEE GCE08
32.	Scientific Workflow Systems for 21st Century, New Bottle or New Wine?	07/2008 IEEE SWF08
33.	Accelerating Large-scale Data Exploration through Data Diffusion	06/2008 IEEE DADC08
34.	Managing and Executing Loosely-Coupled Large-Scale Applications on Clusters, Grids, and Supercomputers	05/2008 GlobusWorld 2008
35.	Falcon: a Fast and Light-weight task executiON framework for Grid Environments	11/2007 IEEE/ACM SC07
36.	A Data Diffusion Approach to Large Scale Scientific Exploration	10/2007 MSES07
37.	AstroPortal: A Science Gateway for Large-scale Astronomy Data Analysis	06/2006 TG06
38.	DI-GRUBER: A Distributed Approach for Grid Resource Brokering	11/2005 IEEE/ACM SC05
39.	e3D: An Energy-Efficient Routing Algorithm for Wireless Sensor Networks	12/2004 IEEE ISSNIP04
40.	DiPerF: an automated DIstributed PERformance testing Framework	11/2004 IEEE/ACM GRID04
41.	Impact of IPv6 on End-User Applications	02/2003 IEEE ICT03
42.	Evaluating IPv4 to IPv6 Transition Mechanisms	02/2003 IEEE ICT03
43.	Using Wireless Sensor Networks to Narrow the Gap between Low-Level Information and Context-Awareness	04/2002 ISCA CATA02
44.	BSD vs. Streams Protocols	06/2001 IEEE ICT01

Seminar Talks

45.	Many-Task Computing: Bridging the Gap between High Throughput Computing and High Performance Computing	09/2009 Northwestern University
46.	Systems at University of Chicago	09/2008 University of Chicago
47.	Harnessing Grid Resources with Data Data-Centric Task Farms	12/2007 University of Chicago
48.	A Data Diffusion Approach to Large Scale Scientific Exploration	10/2007 University of Chicago
49.	Falcon: a Fast and Light-weight task executiON framework for Grid Environments	04/2007 University of Chicago
50.	Storage and Compute Resource Management via DYRE, 3DcacheGrid, and CompuStore	11/2006 University of Chicago
51.	Harnessing Grid Resources to Enable the Dynamic Analysis of Large Astronomy Datasets	02/2006 University of Chicago
52.	AstroPortal: A Science Portal to Grid Resources	01/2006 University of Chicago
53.	The Design, Performance, and Utility of DiPerF, an automated DIstributed PERformance testing Framework	10/2005 University of Chicago
54.	Decreasing End-to-End Job Execution Times by Increasing Resource Utilization using Predictive Scheduling in the Grid	05/2005 University of Chicago
55.	DiPerF: an automated DIstributed PERformance testing Framework	11/2004 University of Chicago
56.	A Study between Networks and General Purpose Systems for High Bandwidth Applications	06/2004 University of Chicago
57.	DiPerF: an automated DIstributed PERformance testing Framework	03/2004 University of Chicago
58.	Searching Large Image Databases	03/2004 University of Chicago
59.	Routing Algorithms in Wireless Sensor Networks	10/2002 Purdue University
60.	Evaluating IPv6 using the Agere 2.5 PayloadPlus Network Processor	10/2002 Purdue University
61.	MEMS Technology Overview and Limitations	04/2002 Wayne State Univ.
62.	Energy-Efficient Routing Algorithms in Wireless Sensor Networks	02/2002 Wayne State Univ.
63.	IP Encapsulation Methods: A Transition Mechanism to Deploy IPv6 Networks	12/2001 Wayne State Univ.
64.	Mobility Support in IPv6	10/2001 Wayne State Univ.
65.	Wireless Sensor Networks and their Applications	09/2001 Wayne State Univ.

Projects

- Falkon** *A Fast and Light-weight task executiON framework*
Summary: Designed and implemented Falkon, to enable the rapid and efficient execution of many independent jobs on large compute clusters. Falkon combines three techniques to achieve this goal: (1) multi-level scheduling to enable dynamic resource provisioning; (2) a streamlined task dispatcher able to achieve order-of-magnitude higher task dispatch rates than conventional schedulers; and (3) performs data caching and uses a data-aware scheduler to co-locate computational and storage resources.
Period: 12/2006 - Present
Web Site: <http://dev.globus.org/wiki/Incubator/Falkon>
Languages: Java (20K lines), C (1K lines), Bash scripts (1K lines)
Features: Web Services, TCP, UDP, Notifications, Threads, JNI, Queues, Maps, Caches, GC tuning
Technologies: Globus, GRAM, GridFTP, Condor, PBS, SGE, Cobalt
OS: Linux, ZeptOS
Testbeds: TeraGrid, SiCortex SC5832, IBM BlueGene/L, IBM Blue Gene/P, Sun Constellation (Sun Blade x6420), Cray XT5, Amazon EC2
Scalability: 160K processors, millions of queued or concurrently running tasks, billions of executed tasks
Performance: 15K+ tasks/sec throughputs, 170Gb/s I/O rates
- Swift** *Parallel Programming System*
Summary: Swift is a parallel programming tool specifically designed to address the fast and reliable execution of large-scale scientific computations on distributed systems, and the concise specification of these applications. My contributions have been in the execution engine to improve scalability and performance by leveraging Falkon.
Period: 12/2006 – Present
Web Site: <http://www.ci.uchicago.edu/swift/>
Languages: Java (10K lines – my contributions 1K lines)
Features: Web Services, TCP/IP, Notifications, Threads, Light-weight threads, Queues, Maps
Technologies: Globus, GRAM, GridFTP, Condor, PBS, Java COG
OS: Linux, ZeptOS
Scalability: 16K processors, 200K executed tasks
Performance: 100+ tasks/sec throughputs
Testbeds: TeraGrid, Open Science Grid, SiCortex SC5832, IBM Blue Gene/P, Sun Constellation (Sun Blade x6420), Cray XT5, Amazon EC2
- AstroPortal** *A Science Gateway for Large-scale Astronomy Data Analysis*
Period: 06/2005 – 03/2009
Web Site: http://people.cs.uchicago.edu/~iraicu/projects/Falkon/astro_portal.htm
- DiPerF** *An automated Distributed PERformance testing Framework*
Period: 09/2003 – 06/2005
Web Site: <http://diperf.cs.uchicago.edu>
- ServMark** *An Architecture for Testing Grid Services*
Period: 01/2006 – 06/2008
Web Site: <http://dev.globus.org/wiki/Incubator/ServMark>
- HOC-SA** *Higher-Order Components-Service Architecture*
Period: 06/2006 – 12/2007
Web Site: <http://dev.globus.org/wiki/Incubator/HOC-SA>
- DI-GRUBER:** *A Distributed Grid Resource Broker*
Period: 09/2003 – 12/2006
Web Site: <http://people.cs.uchicago.edu/~cldumitr/GRUBER/>

Professional Skills

Programming Languages: C/C++ (10+ years), JAVA (10+ years), Bash Script (6+ years)
Tools/Packages: Globus Toolkit 4, Visual Studio .NET
Operating Systems: Windows, Solaris, Linux, ZeptOS
Resource Managers: Condor, PBS, SGE, Falkon, GRAM
Distributed Testbeds: TeraGrid, Open Science Grid, PlanetLab
Supercomputers: SiCortex SC5832, IBM BlueGene/L, IBM BlueGene/P, Sun Constellation (Sun Blade x6420), Cray XT5, SGI Altix ICE 8200

Teaching Experience

Lecturer Northwestern Univ., Dept. of Electrical Eng. and Computer Science
03/2010 – 06/2010

Introduction to Programming (*undergrad level*)

01/2010 – 03/2010

EECS 395 / EECS 495: [Hot Topics in Distributed Systems: Data-Intensive Computing](#) (*undergrad/grad level*)

Teaching Assistant University of Chicago, Department of Computer Science
09/2003 – 06/2005

[Networking and Distributed Systems](#) (*undergrad/grad level*)

Duties: Lead TA of four TAs, prepared quizzes, prepared labs, prepared projects, grader

Guest Lecturer:

Clouds and Grids (12/04/2008)

Web Services (12/02/2008)

Web + Email (11/13/2008)

Middleboxes (10/28/2008)

Web + Email (05/11/2006)

Advanced Network Design (*grad level*)

Duties: Grader

Introduction to Programming for the World Wide Web I (*undergrad level*)

Duties: Lab TA, grader

Honors Introduction to Computer Science 2 (*undergrad level*)

Duties: Grader

Introduction to Computer Systems (*undergrad level*)

Duties: Grader

Fundamentals of Computer Programming I in Scheme (*undergrad level*)

Duties: Lab TA, grader

Guest Lecturer: Compound Data Structures (10/06/2004)

Teaching Assistant Purdue University, Department of Computer Science
08/2002 – 05/2003

Introduction to Networking (*undergrad level*)

Duties: Lab TA, prepared projects, grader

Adjunct Assistant Professor Univ. of Michigan, Department of Computer and Information Science
06/2002 – 08/2002

Data Structures and Algorithm Analysis in C++ (*undergrad level*)

Duties: Prepared lectures, presented lectures, prepared homeworks, prepared projects, grading

Teaching Assistant Wayne State University, Department of Computer Science
08/2000 – 12/2001

Problem Solving & Programming in C++ (*undergrad level*)

Duties: Lab TA, prepared labs, grader

Data Structures & Abstraction in C++ (*undergrad level*)

Duties: Lab TA, prepared labs, grader

Chaired

ACM Workshop on Scientific Cloud Computing (ScienceCloud), 2010
IEEE Transactions on Parallel and Distributed Systems, Special Issue on Many-Task Computing, 2010
ACM Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS), 2009
Distributed Systems Laboratory Workshop (DSLW), 2009
IEEE Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS), 2008
Bird of Feather Session – “How to Run One Million Jobs” (MegaJobs), at IEEE/ACM SC08, 2008
Distributed Systems Laboratory Workshop (DSLW), 2008
Distributed Systems Laboratory Workshop (DSLW), 2007
Distributed Systems Laboratory Workshop (DSLW), 2006

Program Committee (selected)

TeraGrid Conference (TG), 2010
Int. Conference on Network-Based Information Systems (NBIS), Grid, P2P Networks and Applications Track, 2010
IEEE International Heterogeneity in Computing Workshop (HCW), 2010
Int. Conf. on Complex, Intelligent and Software Intensive Systems (CISIS), P2P & Grid Data Technologies Track, 2010
IEEE International Conference on Networking and Services (ICNS), 2010
IEEE International Conference on Networks (ICN), 2010
IEEE International Workshop on High Performance Distributed Data Management (HPDDM), 2009
IEEE International Workshop on Cloud Computing (CC), 2009
IEEE International Conference on Computational Science and Engineering (CSE-09), 2009
IEEE International Workshop on Real-Time Service-Oriented Architecture and Applications (RTSOAA), 2009
IEEE/ACM International Symposium on Collaborative Technologies and Systems (CTS), 2009
IEEE Workshop on Data-Aware Distributed Computing (DADC), 2009
IEEE International Workshop on Scientific Workflows (SWF), 2009
TeraGrid Conference (TG), 2009
IEEE International Conference on Internet and Web Applications and Services (ICIW), 2009
IEEE International Conference on Networks (ICN), 2009
IEEE International Conference on Networking and Services (ICNS), 2009
IEEE International Conference on Systems and Networks Communications (ICSNC), 2009
IEEE Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP), 2009
IEEE Workshop on Grid Computing Portals and Science Gateways (GCE), 2008
IEEE International Conference on Internet and Web Applications and Services (ICIW), 2008
ACM/IET/ICST International Workshop on Performance and Analysis of Wireless Networks (PAWN), 2008
IEEE Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP), 2008
IEEE International Conference on Systems and Networks Communications (ICNSC), 2008
IEEE International Conference on Networking and Services (ICNS), 2008
IEEE International Conference on Networking (ICN), 2008
IEEE/ACM Workshop on Grid Computing Portals and Science Gateways (GCE), 2007

Reviewer (selected)

Journal of Concurrency and Computation: Practice and Experience, 2010
IEEE Transactions on Computers (TC), 2009
IEEE Transactions on Parallel and Distributed Systems (TPDS), 2009
International Journal of Business Process Integration and Management (IJBPIIM), 2009
Journal of Concurrency and Computation: Practice and Experience, 2009
ISCA International Journal of Computers and their Applications (IJCA), 2009
TeraGrid Conference (TG), 2008
IEEE Internet Computing, Special Issue on Virtual Organizations (IC), 2007
IEEE/ACM Grid Conference (GRID), 2007
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