# Peter James Bui

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## Education

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|---|---|---|
| **2012** | **Ph.D.** Computer Science and Engineering | University of Notre Dame |
| **2010** | **M.S.** Computer Science and Engineering | University of Notre Dame |
| **2006** | **B.S.** Computer Science | University of Notre Dame |

## Experience

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|---|---|---|
| **2012 - Present** | Assistant Professor | University of Wisconsin - Eau Claire |
| **2007 - 2012** | Graduate Teaching Assistant | University of Notre Dame |
| **2003 - 2005** | Undergraduate Teaching Assistant | University of Notre Dame |

## Teaching

### University of Wisconsin - Eau Claire

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|---|---|
| **Spring 2015** | CS 170 Computing for the Sciences and Mathematics<br>CS 252 Computer Systems |
| **Fall 2014** | CS 352 Computer Organization and Design<br>CS 491 Programming Challenges |
| **Spring 2014** | CS 170 Computing for the Sciences and Mathematics<br>CS 388 Unix Systems Programming |
| **Fall 2013** | CS 352 Computer Organization and Design<br>IDIS 151 Demystifying Computing |
| **Spring 2013** | CS 170 Computing for the Sciences and Mathematics<br>CS 491 Cloud Computing |

**Fall 2012** CS 163 Introduction to Programming in C++
CS 352 Computer Organization and Design

## University of Notre Dame

**Summer 2011** Boeing Academic Excellence Workshop - Introduction to Computer Science
CSE 20232 C/C++ Programming *(Substitute)*

**Fall 2010** CSE 40166 Computer Graphics

**Summer 2010** CSE 20232 C/C++ Programming *(Substitute)*

**Fall 2009** CSE 40872 Programming Challenges and Problem Solving

**Spring 2009** CSE 20221 Logic Design and Sequential Circuits *(Teaching Assistant)*

**Spring 2008** CSE 20221 Logic Design and Sequential Circuits *(Teaching Assistant)*

**Fall 2008** CSE 40881 Extreme Computing: Parallel CPU Programming *(Teaching Assistant)*

**Fall 2007** CSE 30321 Computer Architecture I *(Teaching Assistant)*

**Fall 2005** CSE 30331 Data Structures *(Teaching Assistant)*

**Spring 2005** CSE 20212 Fundamentals of Computing II *(Teaching Assistant)*

**Fall 2004** CSE 20211 Fundamentals of Computing I *(Teaching Assistant)*

**Spring 2004** EG 10111 Introduction to Engineering II *(Peer Mentor)*

**Fall 2003** EG 10110 Introduction to Engineering I *(Peer Mentor)*

# Research

## Publications

**2014** Robert Fisher, John Fisher, and **Peter Bui**. Dark Nebula: Using the Cloud to Build a RESTful Web Service. Midwest Instruction and Computing Symposium (MICS2014). Verona, WI. April, 2014. **Awarded Third Place**.

John Rankin, Travis Boettcher, and **Peter Bui**. A Web Portal For An Animation Render Farm. Midwest Instruction and Computing Symposium (MICS2014). Verona, WI. April, 2014.

**2013**

**Peter Bui**, Travis Boettcher, Nicholas Jaeger, and Jeffrey Westphal. Using Clusters in Undergraduate Research: Distributed Animation Rendering, Photo Processing, and Image Transcoding. IEEE Cluster (CLUSTER2013). Indianapolis, IN. September, 2013. **Awarded Best Paper in Education, Outreach, and Training track.**.

Nicholas Jaeger and **Peter Bui**. To the Cloud and Back: A Distributed Photo Pipeline. Midwest Instruction and Computing Symposium (MICS2013). La Crosse, WI. April, 2013. **Awarded Third Place**.

Jeffrey Westphal and **Peter Bui**. Scalable Distributed Image Transcoding using Python-WorkQueue. Midwest Instruction and Computing Symposium (MICS2013). La Crosse, WI. April, 2013.

**2012**

Michael Albrecht, Patrick Donnelly, **Peter Bui**, and Douglas Thain. Makeflow: A Portable Abstraction for Data Intensive Computing on Clusters, Clouds, and Grids. Software: Practice and Experience (SPE). November, 2012.

Irena Lanc, **Peter Bui**, Douglas Thain, and Scott Emrich. Adapting Bioinformatics Applications for Heterogeneous Systems: A Case Study. Concurrency and Computation: Practice and Experience (CCPE). September, 2012.

Hoang Bui, **Peter Bui**, Patrick Flynn, and Douglas Thain. ROARS: A Robust Object Archival System for Data Intensive Scientific Computing. Distributed and Parallel Databases, Springer (DPD). August, 2012.

**Peter Bui**. A Compiler Toolchain for Data Intensive Scientific Workflows. *Ph.D. Dissertation*. University of Notre Dame (UND). University of Notre Dame. Notre Dame, IN. June, 2012.

Michael Albrecht, Patrick Donnelly, **Peter Bui**, and Douglas Thain. Makeflow: A Portable Abstraction for Data Intensive Computing on Clusters, Clouds, and Grids. Workshop on Scalable Workflow Enactment Engines and Technologies at ACM SIGMOD (SWEET2012). Scottsdale, Arizona. May, 2012.

Douglas Thain, Michael Albrecht, Hoang Bui, **Peter Bui**, Rory Carmichael, Scott Emrich, and Patrick Flynn. Data Intensive Computing with Clustered Chirp Servers. Data Intensive Distributed Computing: Challenges and Solutions for Large-scale Information Management, IGI Global, Chapter 6 (IGIGLOBAL). May, 2012.

**2011**

**Peter Bui**, Dinesh Rajan, Badi Abdul-Wahid, Jesus Izaguirre, and Douglas Thain. Work Queue + Python: A Framework For Scalable Scientific Ensemble Applications. Workshop on Python for High Performance and Scientific Computing at Supercomputing (PYHPC2011). Seattle, WA. November, 2011.

**Peter Bui**, Li Yu, Andrew Thrasher, Rory Carmichael, Irena Lanc, Patrick Donnelly, and Douglas Thain. Scripting distributed scientific workflows using Weaver. Concurrency and

Computation: Practice and Experience (CCPE). November, 2011.

Irena Lanc, **Peter Bui**, Douglas Thain, and Scott Emrich. Adapting Bioinformatics Applications for Heterogeneous Systems: A Case Study. Workshop on Emerging Computational Methods for the Life Sciences (ECMLS2011). San Jose, CA. June, 2011.

Michael Albrecht, Patrick Donnelly, **Peter Bui**, and Douglas Thain. Makeflow: A Portable Abstraction for Cluster, Cloud, and Grid Computing.. *Technical Report*. University of Notre Dame (UND). University of Notre Dame. Notre Dame, IN. February, 2011.

**2010**

Patrick Donnelly, **Peter Bui**, and Douglas Thain. Attaching Cloud Storage to a Campus Grid Using Parrot, Chirp, and Hadoop. IEEE International Conference on Cloud Computing Technology and Science (CLOUDCOM2010). Indianapolis, IN. November, 2010.

Andrew Thrasher, Rory Carmichael, **Peter Bui**, Li Yu, Douglas Thain, and Scott Emrich. Taming Complex Bioinformatics Workflows with Weaver, Makeflow, and Starch. Workshop on Workflows in Support of Large-Scale Science (WORKS2010). New Orleans, LA. November, 2010.

Hoang Bui, **Peter Bui**, Patrick Flynn, and Douglas Thain. ROARS: A Scalable Repository for Data Intensive Scientific Computing. Workshop on Data Intensive Distributed Computing at ACM HPDC (DIDC2010). Chicago, IL. June, 2010.

**Peter Bui**, Li Yu, and Douglas Thain. Weaver: Integrating Distributed Computing Abstractions into Scientific Workflows using Python. Challenges of Large Applications in Distributed Environments at ACM HPDC (CLADE2010). Chicago, IL. June, 2010.

**2009**

**Peter Bui**. AIR: Accelerated Image Registration. *Master's Thesis*. University of Notre Dame (UND). University of Notre Dame. Notre Dame, IN. November, 2009.

**Peter Bui** and Jay Brockman. Performance Analysis of Accelerated Image Registration using GPGPU. Workshop on General Purpose Processing on Graphics Processing Units (GPGPU2). Washington, DC. March, 2009.

## Presentations

**2015**

**Peter Bui** and Chris Johnson. Madeup: A Language for Making Things Up. *Poster*. SIG Computer Science Education (SIGCSE2015). Kansas City, Missouri. March, 2015.

**2014**

Zach Zens, Hyoki Lee, Kim Pierson, and **Peter Bui**. Integrating MAVLink with LABView: An Arduino-based Autonomous Robotics Platform. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2014). University of Wisconsin - Eau Claire. Eau Claire, WI. May, 2014.

Justin Feiock, Corey Feiock, Nicholas Hasz, and **Peter Bui**. Social Gaming with Chromecast. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2014). University of Wisconsin - Eau Claire. Eau Claire, WI. May, 2014.

John Rankin, Travis Boettcher, and **Peter Bui**. A Web Portal For An Animation Render

Farm. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2014). University of Wisconsin - Eau Claire. Eau Claire, WI. May, 2014.

John Fisher, Robert Fisher, and **Peter Bui**. Dark Nebula: Using the Cloud to Build a RESTful Web Service. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2014). University of Wisconsin - Eau Claire. Eau Claire, WI. May, 2014.

Justin Feiock, Corey Feiock, Nicholas Hasz, and **Peter Bui**. Social Gaming with Chromecast. *Demo*. Midwest Instruction and Computing Symposium (MICS2014). Verona, WI. April, 2014.

**2013**

**Peter Bui**. Scientific, Distributed, Cloud Computing. *Talk*. Student Association of Computing Machinery (SACM2013). Eau Claire, WI. December, 2013.

**Peter Bui**. Work Queue: A Master/Worker Framework for PDC Education and Research. *Poster*. Broader Engagement and HPC Educators Program at Supercomputing (HPCED2013). Denver, CO. November, 2013.

**Peter Bui**. Using Work Queue Inside and Outside the Classroom. *Talk*. Cooperative Computing Lab Workshop (CCL2013). University of Notre Dame. Notre Dame, IN. October, 2013.

**Peter Bui**. Using HTCondor for Teaching and Research at UWEC. *Talk*. HTCondor Week (CONDOR2013). University of Wisconsin - Madison. Madison, WI. May, 2013.

James Felton, Adam Al-Ibrahim, **Peter Bui**, and Chris Johnson. Buster: Distributed Graphical Visualizations on a Budget-minded Cluster. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

Jeffrey Westphal and **Peter Bui**. Scalable Distributed Image Transcoding using Python-WorkQueue. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

Nicholas Goble, Cameron Bjorklund, and **Peter Bui**. Media Server Portal. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

Nicholas Jaeger and **Peter Bui**. Collaborating Graphical Evidence: Distributed Photo Processing. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

Nicholas Jaeger, Trey Zahradka, and **Peter Bui**. A Music Filled Flask: Real Time Distributed Transcoding. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

Travis Boettcher and **Peter Bui**. Using Distributed Computing to Decrease Render Times. *Poster*. Celebration of Excellence in Research and Creative Activity (CERCA2013). University of Wisconsin - Eau Claire. Eau Claire, WI. April, 2013.

James Felton, Adam Al-Ibrahim, **Peter Bui**, and Chris Johnson. Distributed Graphical Visualizations on a Bramble of Raspberry Pis. *Demo*. Midwest Instruction and Computing Symposium (MICS2013). La Crosse, WI. April, 2013.

**2012**

**Peter Bui**. A Compiler Toolchain for Workflows. *Talk*. Cooperative Computing Lab Workshop (CCL2012). University of Notre Dame. Notre Dame, IN. June, 2012.

**Peter Bui**. Compiling and Linking Workflows. *Talk*. HTCondor Week (CONDOR2012). University of Wisconsin - Madison. Madison, WI. May, 2012.

**2010**

**Peter Bui** and Douglas Thain. Weaver: Simple Distributed Scientific Programming. *Poster*. Computer Science and Engineering Student Research Symposium (CSE2010). University of Notre Dame. Notre Dame, IN. November, 2010.

**Peter Bui** and Li Yu. Work Queue: A Scalable Master/Worker Framework. *Poster*. Cooperative Computing Lab Tutorial (CCL2010). University of Notre Dame. Notre Dame, IN. June, 2010.

**Peter Bui**. Weaving Abstractions into Workflows. *Poster*. HTCondor Week (CONDOR2010). University of Wisconsin - Madison. Madison, WI. May, 2010.

**Peter Bui** and Douglas Thain. Weaver: Simple Distributed Scientific Programming. *Poster*. Cyberinfrastructure Days (CIDAYS2010). University of Notre Dame. Notre Dame, IN. April, 2010.

## Grants

**2014**

**Monitoring, Analyzing, and Visualizing Distributed Computing Clusters**. Office of Research and Sponsored Programs.

**Deploying and Managing DSABR: A Distributed System for Automated Blender Rendering**. Office of Research and Sponsored Programs.

**WIDLE: Web-based Interactive Development and Learning Environment**. Office of Research and Sponsored Programs.

**SnakeWrangler: A Multi-User IPython Notebook Management System**. Office of Research and Sponsored Programs.

**GeoSpatial Education Initiative**. UW System Growth Agenda - Institutional Change Grant.

**2013**

**A High-Perfomance Supercomputer Cluster for UW-Eau Claire**. Blugold Commitment Differential Tuition.

**HPC Educator's Program**. Supecomputing 2013.

**Web Assets Delivery Server**. Office of Research and Sponsored Programs.

**Automated Drag and Drop Blog Generation**. Office of Research and Sponsored Programs.

**Enhancing and Extending DSABR: A Distributed System for Automated Blender Rendering**. Office of Research and Sponsored Programs.

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| **2012** | **Amazon Educational Grant**. Amazon Web Services. |
| | **HPC Educator's Program**. Supecomputing 2012. |
| | **LittleFe Buildout**. Supecomputing 2012. |
| | **Buster: A Budget-minded Cluster**. Office of Research and Sponsored Programs. |
| | **Collaborative Animation Rendering System**. Office of Research and Sponsored Programs. |

# Service

## Undergraduate Research/Independent Study

| | |
|---|---|
| **2015** | Charles Volzka, Grant Wuerker, Haley Muotka, John Stupka, Lucas Novoa, Matt Kennedy, Trey Zahradka. |
| **2014** | Ben Singer, Chris Haynes, Corey Feiock, Hyoki Lee, John Fisher, John Rankin, Justin Feiock, Nate Carr, Nicholas Hasz, Robert Fisher, Travis Boettcher, Zach Zens. |
| **2013** | Adam Al-Ibrahim, Cameron Bjorklund, Corey Feiock, James Felton, Jeffrey Westphal, Mitchell Wood, Natalie Wolf, Nicholas Goble, Nicholas Hasz, Nicholas Jaeger, Travis Bischell, Travis Boettcher. |

## Advising

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| **2012 - Present** | Computer Science Advisor. |
| **Winter 2012** | Transfer transcript analysis. |
| **Winter 2012** | Winter Interim Advising Workshop. |

## Organizations

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| **2013 - Present** | University of Wisconsin - Eau Claire Student ACM. | Faculty Advisor |
| **2013 - 2014** | University of Wisconsin - Eau Claire Linux Users Group. | Faculty Advisor |
| **2005 - 2006** | Notre Dame Linux Users Group. | President |

## Program Committee

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| **2013** | International Symposium on Cluster, Cloud and Grid Computing (CCGRID). |
| | The Computer Journal (COMPJ). |

IEEE International Congress on Big Data (BigData).

**2012** Computational Intelligence on Consumer Games and Graphics Hardware (CIGPU).

**2010** Computational Intelligence on Consumer Games and Graphics Hardware (CIGPU).

# Honors and Awards

| | | |
|---|---|---|
| **2010 - 2012** | GAANN Fellowship | US Department of Education |
| **2011** | Computer Science Engineering Student Poster Award | University of Notre Dame |
| **2006 - 2010** | Schmitt Fellowship | Arthur J. Schmitt Foundation |
| **2006** | Outstanding Computer Science Undergraduate | University of Notre Dame |
| **2006** | Summa Cum Laude | University of Notre Dame |