Andrew D. Thrasher, Ph.D.

Contact Information

Department of Computational Biology

St. Jude Children's Research Hospital
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Security Clearance

Information available on request

Citizenship

USA

Research Interests

Bioinformatics, Next-generation Sequence Assembly, Bacterial Genetics/Phylogenetics, Medical applications of Bioinformatics, Scalable Computing, and Workflows

Education

The University of Notre Dame, Notre Dame, Indiana USA

M.S. Computer Science and Engineering, January 2013

- Advisor: Professor Scott J. Emrich
- Area of Study: Bioinformatics

Ph.D. Computer Science and Engineering, August 2013

- Thesis Topic: Novel methods for massive biological datasets leveraging distributed computing.
- Advisor: Professor Scott J. Emrich
- Area of Study: Bioinformatics

Anderson University, Anderson, Indiana USA

B.A., Computer Science, Mathematics and Physics, May 2009

- With Honors in Computer Science

Academic Experience

The University of Notre Dame, Notre Dame, Indiana USA

Graduate Student **July 2009 to July 2013**

- Member of the Notre Dame Bioinformatics Lab
- Primary research in the area of scalable bioinformatics solutions

Teaching Assistant **Fall 2009**

- Assisted Discrete Mathematics
- Conducted problem sessions for second-year computer science students
- Held weekly office hours to assist students
- Graded weekly assignments

Teaching Assistant **Spring 2011**

- Assisted Fundamentals of Computing II
- Supervised laboratory sessions for second-year computer science students
- Held weekly office hours to assist students
- Graded weekly assignments

Anderson University, Anderson, Indiana USA

Undergraduate Student **September 2005 to May 2009**

Teaching Assistant **August 2006 to May 2008**

- Assisted Astronomy and General Physics
- Conducted laboratory sessions
- Graded weekly assignments

Professional Experience

St. Jude Children's Research Hospital, Memphis, TN USA

Senior Software Engineer **July 2013 - Present**

- Member of the automation group within the Department of Computational Biology
- Worked under the supervision of Dr. Jinghui Zhang and Michael Rusch

Battelle National Biodefense Institute (BNBI) / National Biodefense Analysis and Countermeasures Center (NBACC), Frederick, MD USA

Summer Research Associate **May 2011 - August 2011**

- Member of the National Biodefense Anaylsis Center
- Worked under the supervision of Dr. Nicholas Bergman and Dr. Adam Phillippy

Software Research Center at Anderson University, Anderson, IN USA

Project Manager **July 2007 - May 2009**

- Managed the development staff
- Developed software for both institutional and external clients.

Journal Publications

Andrew Thrasher, Zachary Musgrave, Brian Kachmarck, Douglas Thain and Scott Emrich, Scaling Up Genome Annotation Using MAKER and Work Queue, *Int. J. of Bioinformatics Research and Applications (ICCABS 2012 Special Issue)*, In Press

Christopher Moretti, **Andrew Thrasher**, Li Yu, Michael Olson, Scott Emrich and Douglas Thain, A Framework for Scalable Genome Assembly on Clusters, Clouds, and Grids, *Transactions on Parallel and Distributed Systems*, Volume 23, Issue 12, 2012.

Karine Megy, Scott J Emrich, Daniel Lawson, David Campbell, Emmanuel Dialynas, Daniel ST Hughes, Gautier Koscielny, Christos Louis, Robert M MacCallum, Seth N Redmond, Andrew Sheehan, Pantelis Topalis, Derek Wilson and **the VectorBase Consortium**, VectorBase: improvements to a bioinformatics resource for invertebrate vector genomics, *Nucleic Acids Research*, Volume 40, Issue D1

Peter Bui, Li Yu, **Andrew Thrasher**, Rory Carmichael, Irena Lanc, and Douglas Thain, Scripting distributed scientific workflows using Weaver, *Concurrency and Computation: Practice and Experience*, Volume 24, Issue 15, 2012.

Li Yu, Christopher Moretti, **Andrew Thrasher**, Scott Emrich, Kenneth Judd, and Douglas Thain, Harnessing Parallelism in Multicore Clusters with the All-Pairs, Wavefront, and Makeflow Abstractions, *Journal of Cluster Computing*, September, 2010.

Peer-Reviewed Conference Publications

Dinesh Rajan, **Andrew Thrasher**, Badi' Abdul-Wahid, Jesus A Izaguirre, Scott Emrich, and Douglas Thain, Case Studies in Designing Elastic Applications, *13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, 2013

Andrew Thrasher, Zachary Musgrave, Douglas Thain and Scott Emrich, Shifting the Bioinformatics Computing Paradigm: A Case Study in Parallelizing Genome Annotation Using MAKER and Work Queue, *2nd IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS)*, 2012

Andrew Thrasher, Rory Carmichael, Peter Bui, Li Yu, Douglas Thain, and Scott Emrich, Taming Complex Bioinformatics Workflows with Weaver, Makeflow, and Starch, *5th Workshop of Workflows in Support of Large-Scale Science*, at Supercomputing 2010

Conference Posters

Andrew Thrasher, Irena Lanc, Douglas Thain, and Scott Emrich, Makeflow for Bioinformatics, *2010 International conference on Intelligent Systems for Microbiology*, Boston, MA.

Technical Skills

Programming: Perl, UNIX shell scripting, SQL, and others

Applications: LaTeX, BibTeX, Microsoft Office, Celera assembler, BLAST, BWA and other common bioinformatics tools