

# Corey J. Oliver

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## Education

**M.C.S.**, University of Iowa, **May 2012**  
*GPA: 3.72*

**B.A.** Computer Science, *Magna Cum Laude*, Central College, Pella, IA, **May 2010**  
*GPA: 3.91 in major, 3.76 overall*  
*Study Abroad: Hangzhou, China, Fall 2008 and London, England, Spring 2010*

## Industry

**Software Developer** **May 2012–Present**  
*Dwolla Inc*, Des Moines, IA

**Software Developer** **Summer 2010**  
*Alliance Technologies*, Des Moines, IA

- Developed and supported **FullCount**, a touchscreen enabled point of sale system used in retirement communities
- Conceptualized a FullCount component using the Javascript framework Dojo which enabled users to design restaurant table layouts
- Created a web interface to remotely gather information on and monitor remote company distributed FullCount machines

## Teaching

*University of Iowa, Department of Computer Science*

**Teaching Assistant**, Object-Oriented Software Design **Fall 2011**

**Teaching Assistant**, Computer Science II: Data Structures **Spring 2011**

**Teaching Assistant**, Introduction to Computer Science **Fall 2010**

*Central College, Department of Mathematics and Computer Science*

**Supplemental Instructor**, Introduction to Computer Science **Spring–Fall 2009**

## Research

*University of Iowa, Department of Computer Science*

### Research Assistant

**Spring–Summer 2011 & Spring 2012**

*Aaron Stump* (Advisor)

- Implemented and verified properties of a graph data structure in the programming language **Guru**, a pure functional programming language for writing formal proofs demonstrating the properties of programs
- Proved formal properties of the software program **versat**, A formally verified SAT solver incorporating the essential features of modern SAT solvers, including clause learning, watched literals, optimized conflict analysis, non-chronological backtracking and backjumping
- Evaluated and tested versat against leading SAT solvers
- Researched and implemented a term indexing data structure for the software program **gtrw**, A parser generator based on term-rewriting
- Refactored and improved gtrw codebase to improve overall runtime performance for rewriting terms

### Research Assistant

**Summer 2011**

*Cesare Tinelli* (Mentor)

- Built a lexer and parser for the programming language Lustre for use in the front-end component of **KIND2**, An automatic verification tool for safety properties of Lustre programs
- Implemented code transformations for the KIND2 front-end of Lustre source code such as global **const** and **type** propagation, recursive expansion of **include** statements, and node call expansion
- Verified soundness of code transformation by writing a shell script to compare compilation output of transformed and untransformed Lustre source files

*University of Houston, Department of Computer Science*

### Research Assistant

**Summer 2010**

*Rakesh Verma* (Mentor)

- Coauthored working paper *Fast Filtering Heuristics for Bipartite Matching* which was submitted to the ALENEX 2010 conference
- Presented on my research to colleagues and compiled a poster to encourage further interest
- Researched and implemented optimizations for **adjmat**, an implementation of a set of heuristics to aid in reducing the cost of discovering a perfect bipartite matching on a graph encoded as a square adjacency matrix

*Central College, Department of Mathematics and Computer Science*

### Senior Honors Thesis

**Fall 2009–Spring 2010**

*Stephen Fyfe* (Advisor)

- Authored a senior honors thesis entitled *Improving Adjmat*
- Collaborated with advising faculty at Central College and the University of Houston
- Increased personal knowledge of research techniques

## Publications

### *Pending Work*

Rakesh Verma, Jack Wiedrick and Corey Oliver. **Fast Filtering Heuristics for Bipartite Matching**.

### *Refereed Conferences and Workshops*

Aaron Stump, Andrew Reynolds, Cesare Tinelli, Austin Laugesen, Harley Eades, Corey Oliver, Ruoyu Zhang. **LFSC for SMT Proofs: Work in Progress**. In Proceedings of the 2nd International Workshop on Proof eXchange for Theorem Proving (PxTP'12), Manchester, UK, 2012.

Duckki Oe, Aaron Stump, Corey Oliver and Kevin Clancy. **A Verified Modern SAT Solver**. In Proceedings of the 13th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI'12), Philadelphia, Pennsylvania, 2012.

### *Other Work*

Corey Oliver. **The Impact of High Editorial Events on Wikipedia Page Quality**. Web Mining Semester Project. University of Iowa, Spring 2011.

Corey Oliver. **Improving Adjmat**. Senior Honors Thesis. Central College, Spring 2010.

## Skills

**Languages.** C#, Python, Scala, Java, OCaml, L<sup>A</sup>T<sub>E</sub>X, Bash, C/C++, Javascript, Actionscript, HTML

**Operating Systems.** Linux, UNIX, MacOS X, Windows