

# 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

*Dwolla Inc, Des Moines, IA*

Senior Software Developer

Jan 2019–Present

- Created, tested, and implemented a strategy for building and deploying Windows Docker images of our services to AWS which included successfully migrating a pilot service without impacting production. This resulted in significant cost and time savings by eliminating the need for manual updates and maintenance required with our previous service deployment method.
- Developed a configuration as code solution using a custom-built Jenkins shared library, similar to Circle-CI, Travis CI, and GitHub actions, and implemented a gatekeeping feature for deployments to certain environments based on the branch being processed. This improved efficiency and automation of the build and deployment process, reducing the risk of errors and increasing the speed of service releases.
- Wrote and executed an internal RFC that proposed an incremental implementation of Scala Steward, a bot that keeps Scala library dependencies up-to-date, with a focus on minimally impacting developer workflow. Received and addressed feedback to the proposal. This ensured services would automatically receive security and performance updates, leading to a decrease in developer cost and time.

Software Developer

May 2012–Jan 2019

- Led a team in migrating a legacy transaction storage system to an event-sourced system, resulting in the ability to perform real-time reconciliation and other critical business tasks, while minimizing disruption to production systems through a phased approach and regular communication with stakeholders.
- Assisted in the design, development and implementation of a data collation solution that used customer, transaction and other data that was sent to a 3rd party service for processing, resulting in improved fraud detection and compliance with the company's audit and regulatory obligations.
- Contributed to the Level One Project, an initiative led by the Gates Foundation to enable payments and financial inclusion in poorer countries, by assisting in the development of the central ledger component responsible for recording and settling transfers.

*Alliance Technologies, Des Moines, IA*

Software Developer

Summer 2010

- Developed and supported **FullCount**, a touchscreen enabled point of sale system used in retirement communities collaboration with Susan Anderson and Anshul Kumaria.

- 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

## 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

## Publications

*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.

## Skills

**Languages.** C<sup>‡</sup>, Python, Scala, Java, Bash, Javascript, Ruby, Groovy

**Tools.** Jenkins, Terraform, Snyk, Docker