

# Benjamin F Jones

## Contact

<b>Email</b>	<a href="mailto:benjaminfjones@gmail.com">benjaminfjones@gmail.com</a>
<b>Github</b>	<a href="http://github.com/benjaminfjones">http://github.com/benjaminfjones</a>
<b>Webpage</b>	<a href="http://bfj7.com">http://bfj7.com</a>

## Education

<b>2002-2007</b>	<b>PhD, Mathematics;</b> University of Notre Dame (Notre Dame, IN) <i>Thesis title: On the Singular Chern Classes of Schubert Varieties Via Small Resolution</i>
<b>1997-2002</b>	<b>BSc, Mathematics;</b> University of Utah (Salt Lake City, UT) <i>Graduated Cum Laude, Minor: Physics</i>

## Experience

### **Sr. Applied Scientist, Amazon Web Services:** (2020 – present)

Applying formal methods and automated reasoning as part of both internal and public facing networking projects.

### **Sr. Software Development Engineer, Amazon Web Services:** (2019 – 2020)

Developed automated reasoning tools for a security automation and threat modeling project. Developed and operated an internal production system. Drove system design for a next generation security automation tool.

### **Software Engineer, Groq Inc.:** (2017 – 2019)

Developed a compiler for a novel tensor stream processor, including a compiler backend from scratch in Haskell, compiler optimization, code generation, instruction scheduling, QoR optimization, interface between hardware and software team.

### **Research Engineer, Galois Inc.:** (2012 – 2017, 5 years)

Applied formal methods and did software development on a wide range of customer contracts. Used technologies and techniques including: Haskell, DSL and language development, automated theorem proving (SMT solving, model checking, and custom decision procedures), interactive theorem proving (Coq).

### **Assistant Professor, University of Wisconsin, Stout:** (2010 – 2012, 2 years)

Research in representation theory and algebraic geometry, teaching freshman honors calculus, upper level undergraduate courses in algebra, and senior level courses in programming languages.

## Public Projects

<b>Projects</b>	<b>BLT:</b> <a href="#">[Github]</a> A novel decision procedure for integer linear programming that outperforms traditional branch and bound solvers on certain classes of problems. This work was published at the 2015 SMT Workshop <a href="#">[full text]</a> .
-----------------	---

**LIMA:** [\[Github\]](#) A domain specific language for implementing and modeling fault-tolerant distributed systems. This is joint work with Lee Pike as part of NASA contract NNL14AA08.

**Selected Talks  
& Papers**

Debugging network reachability with blocked paths. CAV 2021, Lecture Notes in Computer Science, vol 12760.

*Language for Unified Verification and Implementation for Distributed Avionics.* Journal of Aerospace Information Systems, 2018.

*Modular Model-Checking of a Byzantine Fault-Tolerant Protocol.* NASA Formal Methods, 2017.

*Bounded Integer Linear Constraint Solving via Lattice Search.* 13th International Workshop on Satisfiability Modulo Theories, 2015.

See <http://bfj7.com> for more talks and papers.

---

[benjaminfjones@gmail.com](mailto:benjaminfjones@gmail.com) • <http://bfj7.com> • 706 296 5614