# Nathan St. Amour

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## Education

Master of Science in Computer Science – anticipated May 2020
Cumulative GPA: 3.86/4.0

## Technical Skills

Languages (*ordered by proficiency*): Coq, Python, Ocaml, C++, Haskell, C, C#, Rust, SQL, Java Script

Tools & Platforms: Linux, Windows, LaTeX, Emacs, Git, Visual Studio, Django, .net

Notable Coursework: Advanced Topics in Programming Languages, Machine Learning, Advanced Algorithms, Advanced Topics in Artificial Intelligence, Software Verification, IOT & Wireless Networking, Data Mining, Deep Learning

## Research & Professional Experience

Summer Intern – Internship at Galois (Summer 2019)

- Investigated technology related to verifying software models. (Haskell, Ocaml, C)

Formal Verification – Masters Research with Dr. Gordan Stewart (2018 – present)

- Formal proof of a bound on the number of maximal independent sets of a graph (Coq).
- Contributing to a library for game-based distributed systems, Cage. (Coq).
- Weekly team meetings, progress reports, and presentations.

Formal Verification – Undergraduate Research with Dr. Gordan Stewart (2016 – 2018)

- Library for graph algorithms in Coq that attempts to be both efficient and easy to reason about.
- Worked on verified hardware implementation of HMAC algorithm (Coq and Verilog).

Teaching Assistant – Compilers Course (OCaml) (Spring 2018)

- Graded homework and exams of 70 students and instructed biweekly lab section.
- Frequently made time to meet with students outside of lab and office hours.

Web Development – Internship at Marathon Petroleum Corporation (Summer 2017)

- Implemented an automatic testing framework in Selenium for an internal application (C#).
- Collaborated with the accounting department to improve an internal data entry system (.net).

Bioinformatics – Internship in Plant Biology at Ohio University (2016 – 2017)

- Assembled algae genome data (Python and ABySS software).
- Coauthored a published journal article and presented a scientific poster.

## Publications

Samuel Merten, Nathaniel St. Amour, Gordon Stewart and David Juedes. “A Certified Program for Computing All Maximal Independent Sets” International Workshop on Graph-

Theoretic Concepts in Computer Science. (Pending review) http://wg2019.sau.thilikos.info/

Joshua R. Evans, Nathan St. Amour, Heroen Verbruggen, Eric D. Salomaki & Morgan L. Vis (2019): Chloroplast and mitochondrial genomes of *Balbiania investiens* (Balbianiales, Nemaliophycidae), Phycologia, DOI: 10.1080/00318884.2019.1573349

Sefton, Seaghan, Taiman Siddiqui, Nathaniel St Amour, Gordon Stewart, and Avinash Karanth Kodi. "GARUDA: Designing Energy-Efficient Hardware Monitors From High-Level Policies for Secure Information Flow." *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 37.11 (2018): 2509-2518.

## Professional Affiliations

Ohio University chapter of the Association for Computing Machinery

- Treasurer (2016).
- The International Collegiate Programming Contest (2017): Placed 7th out of approximately 40 teams.