

# Troy A. Baker

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- SUMMARY OF QUALIFICATIONS**
- Multi-disciplinary, problem-solving skills developed through rigorous engagement in Computer Science and Nuclear Engineering.
  - Software architecting and coding skills developed through exposure to large codebases.
  - Strong teaching skills and a passion for learning.

- EDUCATION**
- M.S. in Computer Science* May 2017  
University of Florida, GPA: 3.96
- B.S. in Nuclear Engineering* May 2013  
University of Florida, GPA: 3.99  
Minors: Computer Science, Astronomy, Pre-med track

- WORK EXPERIENCE**
- Intern for CSX* Jan. 2013 - May 2013  
Designed SQL queries to collect GPS train data from CSX servers for use in self-implemented clustering algorithms to estimate customer service times on a rail network.

- PROJECTS** *DR-Planner* Doctoral research, Independent (C++)  
(see [tabaker.com](http://tabaker.com)) Used to quickly find realizations of rigid, 2D bar-joint graphs. Independently coded and architected.
- Implemented self-created algorithms, suitable for industry CAD software.
  - Lead author on scientific paper, published in CAGD.

- EASAL* Doctoral research, ~10 contributors (C++)  
Used to explore the assembly landscape of molecules (and other physical structures.)
- Led the restructuring and refactorization of this project; this allowed for accelerated development with undergraduate students.
  - Contributed to the user guide and feature summary, to be published in TOMS.

- Game Engine* Independent (C++, Lua)  
Implemented from the ground up (using only minimal windowing and asset loading libraries.) Features: sophisticated software architecture patterns, multi-threading, and a deep understanding of the modern OpenGL pipeline.

- LoiCupid* 2 contributors (Ruby, SQL, Javascript, HTML/CSS)  
Features: dynamic website powered by Ruby on Rails, attractive UI, large PostgreSQL database (~90k records), daily tasks for updating database via calls to Riot Games API, and more.

- ACADEMIC ACHIEVEMENTS**
- Author on multiple papers in the field of combinatorial geometry (see [tabaker.com](http://tabaker.com).)
  - Presented publications at several respected conferences.
  - Awarded the Graduate School, Tuckett, and Harris Fellowships.

- SKILLS**
- Machine learning, computer graphics, theory of computing.  
*Languages (Strong, 10k+ LOC):* C/C++, Python.  
*Languages (Moderate, 1k+ LOC):* SQL, Javascript, Ruby, PHP, Java, MATLAB, Haskell, Fortran, R, Emacs Lisp

- GRADUATE COURSEWORK**
- Machine Learning (1 & 2), Computer Graphics, Programming Language Design, Data Structures, Analysis of Algorithms, Computational Geometry, Theory of Computation, Towards Solving P vs. NP, Computer Architecture, Embedded Systems

- TEACHING (as assistant)**
- Software Engineering, Web App Development, Operating Systems, Discrete Mathematics, Theory of Computation, Computer Programming Using C, Programming for Engineers