

# Troy A. Baker

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- SUMMARY OF QUALIFICATIONS**
- Strong teaching skills and a passion for learning. Developed by studying a diverse set of topics in a top-tier university.
  - Exposure to large codebases in which I shaped architecture and wrote algorithms.
  - Independent, creative, critical thinking trained by working towards a PhD.

**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) 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.

*LoLCupid* 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 numerous papers in the field of combinatorial geometry (see tabaker.com.)
  - Presented my publications at several prestigious 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