# Troy A. Baker

troy.allen.baker@gmail.com | tabaker.com | (352) 246-9078 | Gainesville, FL

## 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 code-bases in which I shaped architecture and wrote algorithms.
- Independent, creative, and critical thinking developed while 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 (see tabaker.com)

*DR-Planner*
A large, academic code-base (C++), independently coded and architected by myself for my doctoral research. Used to quickly find realizations of rigid, 2D bar-joint graphs.

- Implemented self-created algorithms, suitable for industry CAD software.
- Lead author on scientific paper, published in CAGD.

*EASAL*
A large, academic, code-base (C++) for exploring 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*
An independent project (C++). 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*
An online app developed with one partner. Features: dynamic website powered by Ruby on Rails, attractive UI, large PostgreSQL database (~90k users), 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.)
- Delivered presentations relating to these publications at several prestigious conferences.
- Awarded the Graduate School Fellowship, the Tuckett Fellowship, and the Harris Fellowship.

## 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 teaching assistant)

Software Engineering, Web App Development, Operating Systems, Discrete Mathematics, Theory of Computation, Computer Programming Using C, Programming for Engineers