

SARAH F. GIBBONS

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EDUCATION

Texas State University

B.S. Computer Science, B.S. Applied Mathematics

San Marcos, TX

December 2018, May 2019

TECHNICAL SKILLS

Programming languages: **C++**, **C**, **Java**, **Python**, **HTML**, **JavaScript**, **CSS**

EXPERIENCE

Undergraduate Research at Texas State University

Applied Mathematics

San Marcos, TX

January—Present

- Worked on a **team** mentored by Dr. Daniela Ferrero; explored whether an efficient **algorithm** could be developed to determine the zero-forcing number (a **fast-mixed search** variant in computer science) of a specific graph families.
- Derived a new **algorithm** for finding the zero-forcing number
- Implemented the algorithm in **C++** demonstrating the new algorithm yields the desired results for arbitrarily sized graphs [Publication in progress]

Undergraduate Research at Texas State University

Computer Science

San Marcos, TX

June—August 2016

- Mentored by Dr. Dan Tamir and Dr. Randy Davila, researched exhaustive, **greedy** and recursive **algorithms** on structured graphs that are used in computing NP-Hard graph properties
- Produced a new lower-bound on the independence number, an NP-Hard graph invariant
- Used **Python** to implement the Havel-Hakimi algorithm and Maxine algorithm, link to code: [GitHub](#)

Undergraduate Lab Assistant at Texas State University

Tutor

San Marcos, TX

June 2017—Present

- Tutor students 15 hours a week in **C++** and **Java**. Help students on programming assignments in the following: Foundations of Computer Science I and II (**C++**), Data Structures (**C++**), Object Programming and Design (**Java**), and Computer Architecture (**C++**)

PROJECTS

Hack for Change

Hacker

Austin, TX

June 2017

- Created an online marketplace that connects small farmers directly to buyers of fresh local produce
- Applied the **Ionic** framework with **Cordova** CLI, **Node.js** in collaboration with six other individuals.
- Worked on coding the login and sign up pages in **HTML**, link to code: [GitHub](#)

Communication Design Hackathon 2017

Hacker

San Marcos, TX

March 2017

- Wrote **Python** scripts to extract and consolidate Capital Metro transportation datasets
- Utilized Python to simulate the number of seats available on a bus at each stop

Personal Website

- Used **HTML**, **JavaScript**, **CSS** to create a personal web page where you can find my portfolio, resume and contact information.
- Code: [GitHub](#) and link to my page [Sarah's Website](#)

LEADERSHIP EXPERIENCE

Association of Women in Mathematics (AWM)

San Marcos, TX

President

August 2017—Present

- Lead 20 students who promoted an increased knowledge of and greater interest in the mathematical sciences
- Organized career preparation workshop
- Mentored and encouraged women as they prepare for careers in science and mathematics

Young Mathematicians Conference 2017

Columbus, OH

Speaker

August 2017

- Invited Talk on Zero Forcing and Propagation on Generalized Petersen Graphs

Women Doing Math Program

San Marcos, TX

Problem Solving Challenge, Winner for the Women Doing Math Program

June 2016