Zachary Hong Hui Segall

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Education

Grinnell College Grinnell, IA

Bachelor of Arts: Double Major in Computer Science, Mathematics; Concentration in Policy Studies; 4.0/4.0 GPA May 2018

Selected Coursework: **(Computer Science)** Software Design: Principles and Practices; Artificial Intelligence; Algorithms and OO Design; Imperative Problem Solving and Data Structures; Functional Problem Solving. **(Mathematics)** Real Analysis; Abstract Algebra; Combinatorics and Graph Theory; Linear Algebra. **(Other)** Microeconomics; Financial Economics

Scholarships and Awards: Grinnell Trustee Scholarship, National Merit Scholarship, Dean's List

Competitions: ACM International Collegiate Programming Competition (2015, 2016); Putnam Competition (2014, 2016)

Skills

Project Management: group coordination, scheduling and budgeting, prototyping, public speaking, peer mentoring

Software Engineering: pair programming, Java (Eclipse), OCaml (emacs), C (emacs), GitHub

Research and Statistical Analysis: technical writing, R (RStudio), LaTeX

Languages: English (Native), Spanish (Conversational), German (Conversational)

Related Experience

Programming Consultant September 2016 – Present

Developmental Psychology Research, Department of Psychology, Grinnell College Grinnell, IA

- Turn specifications into Python code in the Paradigm Experiment Builder for an individuation vs. categorization experiment.
- Communicate with researchers who have minimal programming experience and provide helpful documentation for the experiment code.

Technical Writer August 2016 – Present

Tipping Point Math, Educational Youtube Channel Grinnell, IA

- Write engaging and accessible scripts for the Tipping Point Math youtube channel, starting with the *Frustrated with Democracy?* video.

Class Mentor August 2015–Present

CSC 151 – Functional Problem Solving; CSC 208 – Discrete Structures: Department of Computer Science, Grinnell College Grinnell, IA

- Answer student questions and facilitate learning during daily in-class labs with 30-40 students.
- Lead weekly mentor sessions of five to ten students to review for upcoming quizzes, tests, and projects.
- In fall 2016, created a shared file system and repository of past practice quizzes to organize how the mentors prepare for the mentor sessions and provide feedback for the professors.

Research Experience

Research Assistant Summer 2016

Programming Languages Research, Department of Computer Science, Grinnell Colege Grinnell, IA

- Presented at the Midwest Regional PL Summit (12/02/16) and writing a group paper for PLDI 2017.
- Expanded the Myth program synthesizer to be interactive rather than fully automated. Interaction allows the user to guide the synthesizer and thereby reduce time spent on program synthesis.
- Ran tests comparing the semi-automated synthesizer and the original synthesizer and found that semi-automated version is capable of synthesizing larger functions.

Research Assitant September 2015 – Present

AI Tutor Research and Code Community: Grinnell, Department of Computer Science, Grinnell College Grinnell, IA

- Managing the development of an educational game using an artificial intelligence engine for natural language generation
- Implement an IDE to gather data for a coding tutor in JavaScript and gather data on how students with varying levels of experience interact with fundamental coding problems.
- Developed (in Java) a hint editor for a virtual algebra tutor: developers can change hints without knowledge of Mathematica.
- Promoted awareness for the Code Community through Hour of Code, CS education week, STEM fairs, and Ignite one-day classes. The Code Community continues as an after school program at the local library.
- Collaborated with around 10 community members and educators to diagnose how to get the Code Community to fit into Grinnell.

Research Fellowship Summer 2015

Data Visualization Research Project, Department of Mathematics, Grinnell College Grinnell, IA

- Programmed web applications using the Shiny Package in RStudio and wrote corresponding labs, which are currently in introductory statistics classes at Grinnell College.
- Worked with the Global Terrorism Database (150,000 data points) to create data visualizations.