ELBA GARZA

elba@.tamu.edu ⋄ elba@.cs.princeton.edu ⋄ http://www.elbagarza.com

EDUCATION

Texas A&M University, College Station, TX USA *Aug. 2016 - Present*
PhD Student, Department of Computer Science & Computer Engineering
Advised by Daniel A. Jiménez

Princeton University, Princeton, NJ USA *Sep. 2012 - Jun. 2015*
Master of Science (MSc) in Engineering in Computer Science

Columbia University, New York, NY USA *Sep. 2007 - May 2011*
Bachelor of Science (BSc) in Computer Science

ACADEMIC HONORS AND AWARDS

Graduate Diversity Fellowship *Texas A&M University* *2016 - Present*

Graduate Teaching Fellow *Texas A&M University* *Fall 2018*

Knauss Family Aggie Veteran Freedom Scholarship *Texas A&M University* *2017-2018*

C. Prescott Davis Named Scholar *Columbia University* *2007 - 2011*

PUBLICATIONS

Samira Mirbagher-Ajorpaz, **Elba Garza**, Gilles A. Pokam, and Daniel A. Jiménez
"CHiRP: Control-Flow History Reuse Prediction", The International Symposium on Microarchitecture (**MICRO 2020**), October 2020. Acceptance Rate: 19.4%

Samira Mirbagher-Ajorpaz, Gilles A. Pokam, Esmaeil Koruyeh, **Elba Garza**, Nael Abu-Ghazaleh, and Daniel A. Jiménez
"PerSpectron: Detecting Microarchitectural Footprints of Side Channel Attacks with Perceptron Learning", The International Symposium on Microarchitecture (**MICRO 2020**), October 2020. Acceptance Rate: 19.4%

Elba Garza, Samira Mirbagher-Ajorpaz, Tahsin Khan, and Daniel A. Jiménez
"BLBP: Bit-Level Perceptron Prediction for Indirect Branch Prediction", The International Symposium on Computer Architecture (**ISCA 2019**), June 2019. Acceptance Rate: 16.98%

Samira Mirbagher-Ajorpaz, **Elba Garza**, Sangam Jindal, and Daniel A. Jiménez
"Exploring Predictive Replacement Policies for Instruction Cache and Branch Target Buffer", The International Symposium on Computer Architecture (**ISCA 2018**), June 2018. Acceptance Rate: 17.2%

Wenhao Jia, **Elba Garza**, Kelly A. Shaw, and Margaret Martonosi
"GPU Performance and Power Tuning Using Regression Trees", ACM Transactions on Architecture and Code Optimization (**TACO**), 12, 2, Article 13, 26 pages, May 2015.

EXPERIENCE

AMD, Bellevue, WA USA *Research Intern* *Jan. 2019 - Aug. 2019*
· Analyzed performance models for heterogeneous computing system configurations

Arm Ltd, Austin, TX USA *Research Intern* *May 2017 - Aug. 2017*

· Explored utilization of machine learning techniques within computer architecture design process

Samsung Austin R&D Center, Austin, TX USA *Research Intern*   *Jun. 2015 - Jun. 2016*
· Utilized data visualization and data analysis techniques to gather information on interactions of performance parameters

Post-Graduate Research, San Antonio, TX USA   *Sep. 2011 - May 2012*
· Explored the benefits of randomization in cache addresses to lower miss rates and conflicts
· Used codebase created for ISCA's JWIC-1 Cache Replacement Competition to include matrix manipulation in cache address creation

CRA-W CREU at Columbia University, New York, NY USA   *Sep. 2010 - Jun. 2011*
· Used a modified SimpleScalar simulator to test the effects of hardware accelerators on certain data types
· Modified ARM ISA to include new data types; in this case, sparse vectors

CRA-W DREU at Brown University, Providence, RI USA *Intern*   *Jul. 2010 - Sep. 2010*
· Looked into creating a dynamic approach at reducing the effects of Negative-bias Temperature Instability (NBTI) in embedded systems, specifically scratchpad memories

CRA-W DREU at Georgia Tech, Atlanta, GA USA *Intern*   *May 2009 - Aug. 2009*
· Researched the importance of end-flow basic blocks within a branch prediction environment
· Looked into how control flow post-dominators can be used to detect loops within programs

TEACHING EXPERIENCE

CSCE 121 Introduction to Program Design & Concepts *Instructor of Record*   *Fall 2018*
· Prepared and presented twice-weekly lectures to 85 undergraduate students
· Directed one head graduate teaching assistant (TA) along with 6 undergraduate TAs
· Organized three twice-weekly lab sections taught by head TA and undergraduate TAs
· Adapted and updated ten code-based homework assignments along with labs
· Created two midterm exams and one final examination
· Held weekly office hours and met with students one-on-one for personal issues
· Navigated code plagiarism and test cheating cases at University level

COS 333 Advanced Programming Techniques, Princeton University *TA*   *Spring 2015*
· Held weekly office hours, graded homework assignments, and semester-long final projects
· Advised five student groups through developing their first large-scale software projects

Emerging Scholars Program, Columbia University *Peer Leader*   *Fall 2009 & Spring 2010*
· Presented weekly lectures to small group of undergraduate students
· Undergraduate students chosen from historically underrepresented groups
· Lectures introduced and covered various disciplines within Computer Science
· Directed lectures with help of an assistant peer leader and two graduate mentors

Emerging Scholars Program, Columbia University *Assistant Peer Leader Fall 2008 & Spring 2009*
· Helped peer teacher steer lectures described above
· Wrote grant-destined reports on the efficacy of weekly lecture material
· Suggested changes to material and/or gave sustaining comments to graduate mentors

SERVICE & OUTREACH

Student Representative *IEEE Technical Committee on Computer Architecture (TCCA)*   *2020 - Present*

Student Founder & President *Computer Architecture Student Association (CASA)* *2020 - Present*

Student Founder & Officer *Aggie Hispanics in Computing, Texas A&M University* *2020 - Present*

Rubies Mentor *Aggie Women in Computer Science, Texas A&M University* *2016 - Present*

Graduate Mentor *Princeton Women in Computer Science, Princeton University* *2013 - 2015*

CRA-W Programs Alumna Mentor *Grace Hopper Celebration* *October 2014*

Computer Science Graduate Committee Member *Princeton University* *2013 - 2014*

Undergraduate Representative *CU Women in Computer Science, Columbia University* *2008-2011*

Peer Leader *Emerging Scholars Program, Columbia University* *2009-2010*

Assistant Peer Leader *Emerging Scholars Program, Columbia University* *2008-2009*

Secretary *Columbia ACM Student Chapter, Columbia University* *2010-2011*

Social Chair *Columbia ACM Student Chapter, Columbia University* *2009-2010*