

CARLOS SALINAS

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PURPOSE

To obtain a position in industry which puts my skills in mathematics and my ability to learn to adequate use.

EDUCATION

Purdue University, West Lafayette, IN PhD candidate, Mathematics	2014 - present
University of Texas–Pan American, Edinburg, TX BSc, Mathematics.	2012 - 2014
Massachusetts Institute of Technology, Cambridge, MA BSc, EECS (Course 6).	2009 - 2011

RESEARCH

Summer Research Opportunity Program, Summer 2010, Cambridge

Studied shape-memory properties of Ti-Ta alloys for its potential applications in medical implants under the supervision of Sam Allen.

Undergraduate Researcher at University of Texas–Pan American, Fall 2013–Spring 2014, Edinburg

Studied *special words* which are strings w on two letters a, b (together with a^{-1}, b^{-1}) with values in $\text{PSL}_2(\mathbb{C})$ which are invariant under cyclic permutations for any choice of representation ρ . More precisely, these words w are realized once a representation ρ has been chosen as follows: A representation ρ assigns to each generator a and b a matrix A and B in $\text{PSL}_2(\mathbb{C})$ the word w which can be viewed as an element of the free group on a and b , for example aba^2b^{-1} , is then realized by applying the representation ρ (in our example, $aba^2b^{-1} \mapsto ABA^2B^{-1}$ where $A = \rho(a), B = \rho(b)$).

Character Varieties, Math Research Communities, Summer 2016, Snowbird

Worked on tropicalization of well-known $\text{PSL}_2(\mathbb{C})$ character varieties. The project did not culminate.

Wavelet Image Compression, Fall 2015, Purdue University

Worked on understanding and debugging C code for wavelet image compression written by Bradley Lucier. My focus was on the Q-coder section of the code. A Q-coder is an adaptive binary arithmetic coder whose purpose is to take a sequence of symbols (a bitstream) and return a coded string (a fixed-point number between 0 and 1) with the hope that it will achieve a high degree of compression by exploiting and adapting to the statistics of the sequence.

TEACHING EXPERIENCE

Purdue University, West Lafayette IN

Course	Term	Description
MA 166	Spring 2016	TA for three sections. Topics included: Vectors in two and three dimensions. Techniques of integration, infinite series, polar coordinates, surfaces in three dimensions.
MA 161	Spring 2018	TA for two sections. Topics: Introduction to differential and integral calculus of one variable, with applications.
MA 261	Fall 2018	TA for three sections. Topics: Planes, lines, and curves in three dimensions. Differential calculus of several variables; multiple integrals. Introduction to vector calculus.
MA 261	Spring 2019	Instructor for two sections. Topics: Vectors in two and three dimensions, techniques of integration, infinite series, conic sections, polar coordinates, surfaces in three dimensions.
MA 162	Summer 2019	
MA 261	Spring 2020	

SKILLS

Software	Emacs, Vim, GIMP, Audacity
Microsoft Office	Excel, Outlook, Word, PowerPoint
Programming languages	Scheme (CHICKEN, Guile)/Racket, Python, C, Ruby
Mathematical software	MATLAB/Octave, Mathematica, GAP
Other	L ^A T _E X, Asymptote (vector graphics language)

LANGUAGES

English: Native
Spanish: Native
Russian: Advanced
Persian: Intermediate
Turkish: Intermediate
Arabic (Levantine): Intermediate
Mandarin (Traditional): Basic