

# Carlos Salinas

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## EDUCATION

<b>Purdue University</b> , West Lafayette, IN <i>Master of Science in Mathematics</i>	Aug. 2020 GPA: 3.73/4.0
<b>University of Texas–Pan American</b> , Edinburg, TX <i>Bachelor of Science in Mathematics</i>	May 2014 GPA: 3.86/4.0

## EXPERIENCE

<b>Research Assistant/Teaching Assistant</b> <i>Department of Mathematics at Purdue University, West Lafayette, IN</i>	Aug. 2014 – May 2020
<b>Undergraduate Research Assistant/System Administrator</b> <i>Experimental Algebra &amp; Geometry Lab at the University of Texas–Pan American, Edinburg, TX</i>	Sep. 2013 – May 2014

• Led two to three recitation sections per semester for undergraduate math courses, including Calculus 1, 2, 3, and Differential Equations/Linear Algebra.

• Graded homework, wrote quizzes, and proofread exams for several undergraduate courses, including Calculus 1, 2, 3, Differential Equations and PDEs for Engineering and the Sciences, and Advanced Mathematics for Physicists and Engineers.

• Created a university-hosted website to upload relevant course material such as quiz and homework solutions, recitation notes, and course statistics with Jekyll.

• Studied the zeta function associated to finite quotients of the finitely generated free nilpotent group.

• Managed the lab's Fedora workstation cluster which included updating and installing software, managing users and user permissions, keeping track of workstation usage, and updating the lab's WikiDot-powered website.

• Configured the lab's Nvidia GPU for usage with Mathematica's CUDALink and trained lab members how to use it.

• Operated the lab's 3D printer, updated its software, and kept it in shape for use in the lab's outreach activities.

• Wrote an algorithm in Mathematica to study the trace representations of 2-special words taking advantage of trace identities to reduce the size of search space.

• Discovered a correspondence between 2-special words and orientable necklaces, published in the On-line Encyclopedia of Integer Sequences A237623.

## PRESENTATIONS

<b>Superpositions of a Sigmoidal Function</b> <i>Machine Learning Reading Group, Purdue University</i>	Feb. 6, 2019
• Presented with a partner a foundational result in Universal Approximation Theory to an audience of approx. 40.	

• Introduced the results and language necessary to prove that sigmoids can approximate any continuous function.

• Proved that ReLUs are *discriminatory*, as an application, and therefore universal approximators.

## SKILLS

**Languages:** Python, C, R, Java, MATLAB/Octave, SQL

**Developer Tools:** Git, Emacs, Vim

**Misc. Software:** Linux (Debian, Fedora), Mathematica, LaTeX, Microsoft Office (Excel, Outlook, PowerPoint)

**Natural Languages:** English (native), Spanish (native), Russian (fluent), Persian (conversant), French (proficient)