

Latinxs and Hispanics in Mathematical Sciences



Photo courtesy of César Herrera

César Herrera

PhD Candidate

Purdue University

César was born and raised in San José, Costa Rica, where he studied mathematics at the Universidad de Costa Rica. After graduating, he taught for one semester at the University of Costa Rica and then moved to the United States to start his PhD in mathematics at Purdue University.

One of his main motivations for pursuing mathematics, and especially research, is the joy he finds in tackling difficult problems. He sees math as a profound challenge and a way to constantly compete against himself.

His main research interests are numerical partial differential equations (PDEs). His long-term goal is designing efficient numerical methods for PDEs coming from hyperbolic conservation laws, which can be used to model physical phenomena such as fluid and gas dynamics. These equations are numerically challenging, as traditional numerical methods yield approximations that do not correspond to the physical phenomena they are trying to model. He currently designs these numerical methods using neural networks, which he considers a highly effective tool for solving these problems.

In parallel, he has also been designing mixed-precision Runge-Kutta (RK) methods. RK methods are a family of numerical methods for solving PDEs, and the goal of mixed-precision RK methods is to expedite the runtime needed to obtain a particular approximation.

Over the past two years, he has published several papers across both research areas and has regularly presented his findings at major venues, including the SIAM Annual Meeting, SIAM TXLA, the Copper Mountain Conference on Iterative and Multigrid Methods, and ENUMATH.

"I find Hispanic Heritage Month a good time to be grateful for life because I grew up in a home full of love, and a family that gave me freedom and support to explore and go further."

Lathisms was founded in 2016 in order to showcase the contributions of Latinx and Hispanic mathematicians during Hispanic Heritage Month, which is celebrated in the United States from September 15 and October 15 every year. During this time, we feature/reveal a prominent Latinx/Hispanic mathematician daily. See all the featured mathematical scientists at [LATHISMS.ORG](https://lathisms.org).

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