

# 2021 Lathisms: Latinxs and Hispanics in the Mathematical Sciences

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For the past five years, Lathisms: Latinxs and Hispanics in the Mathematical Sciences ([www.lathisms.org](http://www.lathisms.org)) has provided an accessible platform that features the outstanding research, teaching, mentoring, and service contributions of Latinxs and Hispanics to the mathematical sciences. For 2021, we have chosen to feature Latinx and Hispanic mathematicians who are contributing to business, industry, and governmental agencies. Our goals are twofold: celebrate mathematicians working outside of academia and highlight for future generations of mathematicians the many career possibilities that can be achieved with a mathematics degree. Thereby, we hope Latinx and Hispanic mathematics students can see themselves represented and imagine the many types of careers they can pursue.

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*Communicated by Notices Associate Editor Stephan Ramon Garcia.*

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DOI: <https://doi.org/10.1090/noti2337>

Below we present profiles of five of our 2021 Lathisms honorees. These honorees were selected to illustrate the diversity of those who form the Lathisms community.

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## Agustin Bompadre

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Agustin Bompadre, Product Manager, SAP Labs.

*"I am very proud of being part of the Hispanic community. Even though throughout my career I had Hispanic colleagues, I*

think we could do better in terms of having more Hispanics in the software industry.” – Agustin Bompadre

**Biography:** Dr. Bompadre first studied mathematics at Universidad de Buenos Aires, in Buenos Aires, Argentina. He then completed a PhD in Operations Research at MIT. After graduating, Dr. Bompadre worked for a startup in supply chain optimization in Burlington, MA. Later, he was a postdoc in Computational Mechanics at Caltech. Eventually, he went back to industry and joined SmartOps in Pittsburgh, PA, as an Algorithm Design Engineer in the Supply Chain Algorithm team. SmartOps was acquired by SAP and he continued working for SAP on the same team.

Dr. Bompadre enjoys the fact that the software he works on helps many companies run their supply chain more efficiently. The problems he works on are stochastic optimization problems. For that he uses nonlinear optimization, probability, and statistics. He also uses graph algorithms and occasionally incorporates machine learning.

When asked about advice for students possibly wanting to pursue a career in industry, Dr. Bompadre says: “People in industry like to see some practical skills and experience from applicants. Take some courses in applied math, computer science, or data science. Learn to code in a language used in industry, like C++, Java, Python, or R. Do a summer internship in industry.”

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Imelda Flores Vazquez

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Imelda Flores Vazquez, Senior Economist, Econometrica Inc.

“Hispanic Heritage Month, to me, is a time to celebrate my heritage. I love attending events and bringing my son so he can

learn about his heritage. I also learn in the events I attend. We have such a rich history that I think I will keep learning about our heritage for the rest of my life.” – Imelda Flores Vazquez

**Biography:** Dr. Imelda Flores Vazquez grew up poor in a small Mexican town. She was fortunate enough to be in class with the best math teacher in her high school. While she was always a good student, she was not interested in math until she met this influential math teacher. Her teacher saw she had potential and got her interested in math. With her support, Dr. Flores won a bronze medal at the Mexican Mathematics Olympiad. That led her to a full scholarship at the University of Guanajuato in Mexico for her BA in Mathematics. At the University of Guanajuato she met professors that encouraged and supported her and she ended up completing a PhD in Economics at New York University (a top 10 department for economics in the US). After that, Dr. Flores was an assistant professor at the Rochester Institute of Technology. She became interested in doing research that was used for policy decisions, so she changed to a job in the Texas government, after which she worked in the hospital industry for a few years, and now is back doing research that has an impact on policy decisions. Her current job with a federal government contractor allows her to work on research projects that are used by many federal and state government agencies for policy decisions.

Her biggest accomplishment is coming this far in life having grown up in the small, isolated town of Cedral, Mexico. It is an accomplishment that makes her proud and sad. It makes her sad because she knows many equally or more talented girls and women that grew up with her who did not have the opportunities that she had. Dr. Flores Vazquez hopes that one day every Latinx girl or boy has the opportunity to grow professionally the way she did no matter where they come from.

Her second biggest accomplishment is a paper she published in the *New England Journal of Medicine*, “Effect of removal of Planned Parenthood from the Texas Women’s Health Program.” The *NEJM* is one of the most prestigious medical journals in the world. She considers that paper an accomplishment not only because of the prestige of the journal, but because of the light it shed on a policy issue that matters to many women. It is her most read paper by far (142K page views and counting) because it was about an issue that matters to many people including millions of women that did not read it, but have felt the effects of the policies studied in the article.

In her daily work, Dr. Flores uses statistical models to evaluate government programs and policy and regulation proposals. The idea is to see what effect a program or regulation has. For that, she needs to control for confounding

factors and find the correct control groups, in order to make sure she is measuring only the effect of the program or regulation and not other events that happened around the same time the program or regulation came into place. Specific examples of the statistical models she uses are: regression discontinuity, propensity score matching, difference-in-differences, instrumental variables.

For students wanting to pursue a career like hers she advises: *“You have to get comfortable with answering ambiguous questions. It is okay to acknowledge that you don’t even know where to start when you are given an ambiguous question, don’t panic. Get as much practice as you can during your studies trying to solve open-ended applied questions. At most jobs in industry and government they don’t expect a perfect answer, they just want something useful. It is okay to acknowledge that your answer is imperfect and it doesn’t account for everything or that you can only answer the question partially.*

*Also, be confident about your skills. If you are a math undergrad, you have a ton of skills that are very difficult to acquire. You actually have an advantage over many other recent graduates. In interviews, don’t focus on your shortcomings (like not being sure if you can answer all ambiguous questions they throw at you); focus on the fact that you have a ton of experience solving problems and translating real-world questions into models.”*

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### Nelson Colón

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Nelson Colón, White House Presidential Innovation Fellow.

*“Hispanic Heritage Month is a time to celebrate and reflect on the contributions our community has made—and will continue to make—to this country and the world.” – Nelson Colón*

**Biography:** Dr. Nelson Colón received his PhD in Mathematics from the University of Iowa. His research was

mainly focused on topological quantum field theory. After receiving his PhD he did a data science bootcamp and went on to work as a data scientist in the field of cybersecurity. While he was participating in the bootcamp he was also doing volunteer work in civic tech and that inspired him to leave the private sector and join government.

Dr. Colón is the first Latinx person to be named White House Presidential Innovation Fellow. He received a Special Act Award for a Machine Learning API he built that helps speed up benefit applications for veterans while also saving the Department of Veterans Affairs millions of dollars a year.

Dr. Colón is saddened by the fact that he does not get to do much math or programming anymore as he is in a more strategic and policy-oriented role. But the one skill he got from math that has been the most valuable in his current role is the ability to break down a complicated problem in order to understand it and come up with a way to solve it.

If students are interested in careers outside of academia Dr. Colón’s advice is: *“Stay curious! Don’t get caught up in your program. If it is possible use your elective courses to learn about other subjects outside of your primary field of study. Don’t just focus on the academics; if you can, do volunteer work, join the student senate, join a club. This will be great practice for when you graduate and find yourself surrounded by people from all sorts of professional backgrounds and walks of life.”*

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### Aisha Najera Chesler

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Aisha Najera Chesler, Mathematician RAND Corporation.

*“Hispanic Heritage Month is an opportunity to celebrate our culture, commemorate our traditions and history, and highlight*

*contributions of the Hispanic community.” – Aisha Najera Chesler*

**Biography:** Dr. Najera Chesler studied mathematics in Mexico City at the National University of Mexico, UNAM. Right after she finished her undergraduate studies, she moved to Tucson, AZ, for graduate school and there she obtained her MS in Mathematics. Upon completing her master’s degree, Dr. Najera Chesler worked as a technical consultant for IBM doing SAP implementations for a couple of years and went back to obtain her PhD in Mathematics under the guidance of Prof. Radunskaya at Claremont Graduate University (CGU). While Dr. Najera was a doctoral student she went to summer schools, learned to program, worked as a research assistant, attended as many conferences as she could, and got an internship at RAND. A week after graduating, her second child was born and she took some time off to care for her before she started a job at RAND as an associate mathematician. For five years Dr. Najera has been doing research focused on analytical and modeling work for the Army that supports readiness, efficiency, and modernization. She has worked on various business intelligence and AI science projects designing metrics and algorithms that provide support to improve supply chain metrics, inform strategic decisions, and manage risks. Other research interests of Dr. Najera include social media analysis, Latinx populations, gender violence, and embedding diverse perspectives into data science practices.

Dr. Najera proposed and co-organized an NSF-funded workshop for Women in Mathematics and Public Policy at IPAM-UCLA, which resulted in the publication of a Springer book with the same title which she co-edited. The workshop was aimed at getting together interdisciplinary and diverse teams from industry and academia to work on pressing policy questions related to climate change and cybersecurity. At RAND that idea was recognized with a Spotlight Award. Other awards and honors that she received include a dissertation fellowship from the American Association for University Women and a BLAIS/Maguire fellowship throughout her studies at CGU. In 2004, she was awarded a Gabino Barreda Medal and as a high school student she represented Mexico in an international math competition.

In her daily work, Dr. Najera uses optimization algorithms, probability, network analysis, differential equations, statistics, agent based modeling, and Monte Carlo simulations.

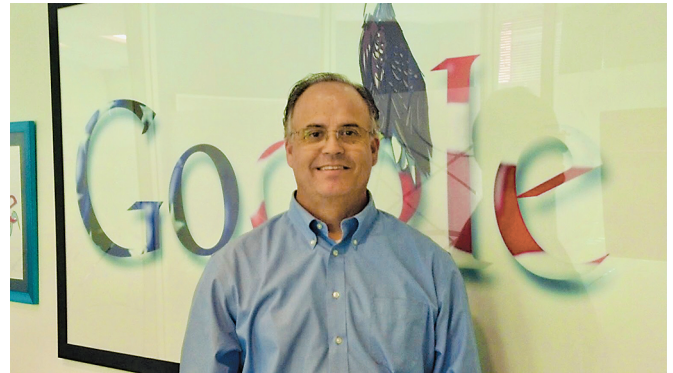
Her advice for students seeking a career like hers is: *“Learn to program, take a diverse set of math classes and see it as an opportunity to learn new things rather than to specialize in an area. A modeling class is a must. I would also encourage*

*them to learn about mathematical applications in different industries and take advantage of any projects and team work where there are often opportunities to do exploratory work and sometimes even to do research.”*

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Mario Diaz

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Mario Diaz, Sales Director for US Navy/USMC VMware, Inc.

*“I am so proud of my parents, my grandparents and ancestors for working so hard to make life better for each succeeding generation. I am so thankful for my antecedent hard work and love of family that allowed me to arrive at this place—here and now. I am also very happy that my adopted country of the US has set aside time during the year to acknowledge the contributions of Hispanics living here. It makes me quite grateful that this great country gives immigrants the opportunity to make a better life for ourselves and our future generations!” – Mario Diaz*

**Biography:** Mr. Diaz received a BA in Math from Humboldt State University, California, in 1983. His focus was on Applied Math and Software Development. His first computer programming class at Humboldt State was conducted using punch cards! He was hooked on software development and computer applications from the first week in that class. Mr. Diaz’s first job after college was as a computer/SW engineer for Digital Equipment Corp (DEC). DEC had a college graduate entry-level program, and it provided a great opportunity for him to learn about computer engineering and business applications. In 1992, he began an MBA program at National University and received his MBA in 1994. In 1992, the management team at DEC invited him to move to a sales position and, while he missed hands-on experience with the latest technology, he realized that he had a passion for working with people and clients in a sales environment.

Since 1992 Mr. Diaz has focused on software sales supporting clients within the Department of Defense. His passion and expertise over time has evolved from more than just understanding and applying computer technology to business applications. Over the years, Mr. Diaz developed an expertise in specific Department of Defense (DoD) requirements and applications. He was hired by his current employer, VMware, to lead their team of sales professionals supporting US Navy and US Marine Corps clients.

The recognition Mr. Diaz received over the years is focused on meeting and exceeding job performance measures. He was named employee of the quarter while at DEC multiple times and employee of the year (within the Southern California Government Region) three times. He was recognized as Manager of the Year while at Sun Microsystems Federal in 2007.

In his current position, he uses basic business mathematics skills to calculate key performance indicators such as: sales growth/decline, compound growth rate, revenue and expense targets, and net-profit estimates.

Mr. Diaz's advice for students hoping to pursue a career in business is: *"First, find an application/industry you can be passionate about. If you see your job as a chore you are in the wrong job. I recall thinking to myself that I could not believe DEC was paying me to do the work I was assigned. And to this day, I still think—VMware is actually paying me to do this! Secondly, know that nothing will ever stay the same—change in our professional lives is a constant. Technology, employers, governments will all change over time so stay focused on what you are most passionate about."*

**ACKNOWLEDGMENTS.** We would like to extend our deep gratitude to the Mathematical Association of America for their continued support of Lathisms via Tensor-SUMMA grants from 2018–2021. We also thank the AMS for their support promoting Lathisms. Last, but not least, we thank Richard Diaz for his continued webwork which makes [www.lathisms.org](http://www.lathisms.org) possible.

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