

Evelyn Lamb: [00:00](#) Hello. Welcome to the Lathisms podcast. I'm Evelyn Lamb. In each episode, we invite a Hispanic or Latinx mathematician to share their journey in mathematics.

Evelyn Lamb: [00:20](#) Today I'm very happy to welcome Nicolas García-Trillos to the show.

Evelyn Lamb: [00:24](#) Thanks so much for taking the time to talk with me.

Nicolas García: [00:26](#) Hi, Evelyn. Thank you for inviting me.

Evelyn Lamb: [00:30](#) I understand you're in the middle of a move. You're moving between institutions right now?

Nicolas García: [00:35](#) Yes. Basically in the last week, I had to drive with my wife a very, very big truck to go from Providence, Rhode Island to Madison, Wisconsin. I'm moving from Brown University where I just finished my three postdoctoral years and now I'm joining the Department of Statistics here in Wisconsin.

Evelyn Lamb: [01:00](#) Well, that's very exciting.

Nicolas García: [01:01](#) Yeah, yeah, it is. The whole process has been very exciting and believe me when you make such a big move from one state that is very, very far away from the other, then it really helps intensify that excitement in arriving to a new place, and so it's been pretty wonderful experience.

Evelyn Lamb: [01:25](#) You said you're in the Statistics Department there? Is that the area your research is?

Nicolas García: [01:30](#) Yes. I would say that my research area combines many disciplines, math, stats, and machine learning. But yeah, part of the research definitely has to do with statistics, that's why I'm here.

Evelyn Lamb: [01:49](#) Okay. What are some of the research questions that you like to study?

Nicolas García: [01:55](#) Since it's an interdisciplinary, the idea is to try to use the tools that some of these areas provide to perhaps give answers to questions that the other areas are interested in. In my case, I try to use mathematical ideas and come up with also mathematical tools to study machine learning procedures, that are used to analyze data. The goal really is to use this idea, these tools, to connect what some people do in machine learning, and connect those with other areas that are perhaps better known to mathematicians like partial differential equations, and things like this.

- Nicolas García: [02:44](#) Things that could be unseemingly related are actually, or could be actually, put together in a nice way. What you would know from one area, you can translate into the other. Usually, the transfer of knowledge is pretty helpful in expanding our understanding of different task and procedures.
- Evelyn Lamb: [03:10](#) What inspired you to go into statistics?
- Nicolas García: [03:14](#) Well, I would say that ... if I go back in time, I try to think who was the kind of a main motivator? I would have to blame my older brother for that. I would say that he's responsible for a big part of me being a mathematician and he has been a big influence in many ways throughout my life. I think it's fair to say that he's to blame for that. He's also a mathematician, he's six years older than me, and he's currently a professor at the University College of London. We're just an ocean away in terms of distance but I think throughout my life he has been very close to me.
- Evelyn Lamb: [04:05](#) As a child, did you know that you were interested in math and statistics?
- Nicolas García: [04:10](#) I would say that ... let's say my school was always kind of well-known for being good at math now. Of course the idea one has about what is math in a school and high school especially and the one that you have when you're a professional, those two ideas are very different. Okay, but anyways my school was supposed to be good at math but I was never very exposed to extra-curricular activities related to math. Most of the extra mathy stuff that I was exposed to came from my brother precisely. I would sometimes have him to assign me kind of mathy problems, maybe challenge me. I could work on those during my free time but other than that during my high school years, there was no specific kind of sign that would suggest that I would end up being a mathematician.
- Nicolas García: [05:13](#) I guess that changed towards the end of high school. My last few years I had the opportunity to participate in Physics Olympiads in Colombia where I am from, and in the last year I had the opportunity to participate in an International Physics Olympiads in South Korea. Somehow that experience was very, I don't know, exciting. And I really, really like the whole process of preparing and going there so far away just for the sake of kind of like taking a science test kind of. I think that that was kind of the final push I needed to opt for a science career.
- Nicolas García: [06:03](#) I think that experience was the decisive factor in me going for math and physics originally.

- Evelyn Lamb: [06:12](#) You're younger than some of the other guests that we've had so far. During your schooling and early part of your career now, are there people that you look up to in mathematics and statistics?
- Nicolas García: [06:26](#) I would say that maybe despite being young in relation to perhaps other people working in math, I would still say that my mathematical heroes are actually contemporary to me. I would say that those are my collaborators because ... at least the way I see this is they are ultimately the ones that make me believe that math can really be fun. And by fun, I mean that you feel you can wake up on a regular Monday and say, "Oh, I don't mind at all that I have to go to the office today." You don't mind simply because you are going to work and discuss with your friends. Somehow math, thanks to them, becomes just an excuse to work with your friends.
- Nicolas García: [07:24](#) I would say that I have been pretty consistent at working with young researchers. This was unintentional but it has happened in that way. But now that it has happened, I look back and I say, "Well, I love the idea of collaborating with people who are kind of at the same academic level or perhaps even younger." Because of course usually when you are in the same age group then your collaborations turn into friendships, and these friendships motivate the collaborations even more so it's kind of like a good, positive cycle. And the fact that there is nothing better than to work on interesting projects with your friends.
- Evelyn Lamb: [08:06](#) Did you have a lot of mentors going through your education?
- Nicolas García: [08:12](#) I would say that the direct mentors, I would have to say the only one that I have or that I had, was my PhD advisor, Professor Dejan Slepčev at Carnegie Mellon. Other than that, I would say that I didn't have any direct mentor. Although I would say that I always had very supportive departments I was part of. All the departments I was in starting from my undergrad education in Bogotá, in Colombia, Universidad de los Andes, they always created this very good environment to learn, all my PhD program at Carnegie Mellon was also fantastic. The last three years that I spent at Brown were also pretty good.
- Nicolas García: [09:12](#) But as I said, I didn't have individual figures other than my PhD advisor who would be mentoring me, it was more just being part of good departments.
- Evelyn Lamb: [09:25](#) How do you overcome challenges in your academic and research career?

- Nicolas García: [09:32](#) I would have to say that with the years, experience years, I have come to kind of a realization specifically about how math works and I think that that realization has helped at times when I thought, for example, I couldn't move forward in a specific problem. The realization is more or less like this that ... well first, you take a look at some very influential papers that people have written and then you say you don't see a big proof in the paper. You're gonna see that maybe the purpose of the paper is to write a super long, technical proof. The realization has to do then with the fact that it is not uncommon for people to assume that good math means difficult math.
- Nicolas García: [10:29](#) But of course what I have come to realize is that there are many ways in which one can do good mathematics and some of these other ways of doing good mathematics involves, for example, realizing that what you have to do is sometimes ask a question rather than answering one, or maybe that what you have to do is come up with new methodology to fulfill a given task, or maybe you can try to clarify or simplify something that perhaps was evident for only five people in the world but not to anyone else.
- Nicolas García: [11:07](#) All these are other ways in which you can do good mathematics. I think that realizing this is good because it helps you keep your confidence high. It helps you understand that even if you're not gonna write a super technical proof every single day, you're still making a good contribution so you can kind of avoid being stuck thinking in this way, that the panorama is quite broad.
- Nicolas García: [11:39](#) The other realization ... that was one first realization. The other realization is, is more general, it's much as for math and applies for, of course, other human endeavors. I guess the best way to describe it is to quote what artists say to each other so they say something like, "Well, not every piece that you make, not every art piece, will be a masterpiece." Of course, artists talk about the masterpiece syndrome, things like always expecting that whatever art piece that you make has to be a masterpiece.
- Nicolas García: [12:21](#) But I guess translate it into math terms, the quote about not every piece will be a masterpiece should read something like, "Some papers will be great, other will be less impressive." But of course the important thing is to keep persevering and learn from the process of working on all these projects, and doing all this stuff. As I said previously, this often requires a change in point of view.
- Evelyn Lamb: [12:47](#) So maybe also it can help you if your stuck on one part of something that you're doing, you can maybe work on another project for a little while or something.

- Nicolas García: [12:59](#) Yes, that's correct, exactly. I would say that you can change the point of view within projects but you can as you suggest also change projects sometimes and sometimes it's also good to put the one project aside for a little while and then work on something else. Sometimes, it's incredible how maybe when you're taking a shower you come up with an idea that suddenly: "oh, this could work in that other project that I had left behind for a while". Sometimes, taking fresh air and putting a project aside is actually a good way to deal with it.
- Evelyn Lamb: [13:43](#) Your episode will be the first one that's airing in Hispanic heritage month which starts, or at this point for our listeners, started on September 15th. Do you have thoughts on Hispanic heritage month? I know you've been in the US, I think, since your graduate work?
- Nicolas García: [14:02](#) Yes, right. I've been here eight years now.
- Evelyn Lamb: [14:06](#) Have you celebrated Hispanic heritage month before or what do you see as its importance?
- Nicolas García: [14:12](#) Well, okay. I can be completely honest. I grew up in Colombia so of course I was not aware of the concept of Hispanic heritage month and it was only until recently that I heard about it. But then of course I read a little bit about it, how it was created, and under what president it was created, and so on.
- Nicolas García: [14:38](#) As I was reading that ... this something happens in general for many, many celebrations that sometimes it's easy to fall in the temptation to think that a certain celebration is related to a specific kind of a political figure or celebrity, or someone who in one way or another represents the celebration. But I think that of course once the celebration has been created, it is the responsibility of the individuals to take possession of it and own it. Of course this applies to Hispanic Heritage Month. In a sense, we, the individuals, are the ones who have to give meaning to it. I think that in many ways, each person will have or will give a different meaning to the celebration.
- Nicolas García: [15:38](#) For me, at least, is an opportunity to look into the future in the sense that, "Okay, it's good to remember your roots and where you come from but also what can I do to help looking into the future?" And of course the meaning that I give specifically given the kind of a position where I'm at is to invite all young students from Hispanic background to venture into the creative fields. And yes, I am talking math as a creative field. I want to invite them to consider the possibility of being part of this.

- Nicolas García: [16:35](#) Of course, my purpose is not just to say, "Oh, I want to invite you." Kind of like in a big way but more concretely, of course, I would like to open the doors to young, dedicated, hardworking students especially for Hispanic origin to apply to the University of Wisconsin Madison Department of Statistics, that I'm more than willing to open the doors for those who are interested in pursuing a PhD program career, for example, in Stats, and of course I'm more than looking forward to reading about all of you, and somehow, yeah. I don't know, just interested in seeing all those students coming here. I would be happy to see a lot of applications from Hispanic students.
- Evelyn Lamb: [17:38](#) Do you have advice for students who are thinking about going into math or statistics?
- Nicolas García: [17:44](#) For example, what I think the main attribute or aspect of a mathematician and researcher is, I think, the drive to be excited about what you're doing. It's the drive of like what you're doing and I think that's the main attribute. I think that knowledge can be acquired but the spirit somehow is something that you have and you have to have it in order to learn anything. Basically, my advice would be don't worry too much if you feel that you're not as impressive as other people. Just worry if you don't have the attitude.
- Evelyn Lamb: [18:33](#) Well, thank you so much for taking the time to talk with me especially in the middle of such a busy move for you.
- Nicolas García: [18:39](#) No, no, my pleasure. In any case, the move is about to over so my pleasure.
- Evelyn Lamb: [18:49](#) Yeah. Good luck at your new position.
- Nicolas García: [18:51](#) Thank you very much. Have a nice-
- Evelyn Lamb: [18:56](#) Thank you for listening to the Lathisms podcast. It's produced by me, Evelyn Lamb, and made possible by a Tensor-SUMMA grant from the Mathematical Association of America. Our music is Volveré by La Floresta.
- Evelyn Lamb: [19:09](#) Lathisms is an initiative to celebrate the accomplishments of Hispanic and Latinx mathematicians. It was founded in 2016 by Alexander Diaz-Lopez, Pamela Harris, Alicia Prieto Langarica, and Gabriel Sosa. You can find more information about the project at Lathisms.org, that's L-A-T-H-I-S-M-S-. - O-R-G.
- Evelyn Lamb: [19:31](#) Join us next time to hear from another inspiring mathematician.