

Nicholas Videen: from musician to CCNY

mathematics graduate degree

Congratulations to Nicholas Videen, who graduated from CCNY in 2024 with a M.S. in Mathematics. He has also been teaching here since 2024.

Hear from Nick in his own words:

After spending many years as a musician and math tutor, I decided to return to school to study mathematics during the pandemic. I had always loved math, and I was excited to learn more. After completing a few undergraduate math courses remotely at the University of Minnesota, I enrolled in the master's program at CCNY. I loved every class I took, and I was blown away by how expansive each topic was. Having completed the master's degree, on the one hand I feel like I have learned a ton and have significantly developed my mathematical mind, but on the other hand I feel like I know so little. I certainly now have an unquenchable thirst to continue learning more.

I feel very lucky to have found CCNY. The courses were extremely interesting and motivating, and I loved the challenge they provided. I already miss the daily quest of seeing how much I could get my brain to do. Getting to know the professors and other students was invaluable. I very much enjoyed Weilin Li's classes, and one summer he kindly agreed to mentor me via the Rich internship. This internship allowed me to explore scientific computing and coding, topics which I wouldn't otherwise have had access to. The next summer I was fortunate enough to do an internship with the wonderful Joseph Bak in the area of approximation theory, using what I'd learned the previous summer to create computer programs and graphs in an investigation of approximation methods. I found the Rich program to be a fantastic enhancement to the MS degree that expanded my knowledge and kept me progressing through the summer.

Perhaps the opportunity for which I am most grateful was the chance to teach classes at CCNY as an adjunct lecturer. I discovered that I really love this type of teaching, which has significantly shaped my career goals. Looking forward, I hope to continue teaching math at the college level and perhaps find some other math-related pursuit. I'm excited to see what the future holds, and I'm grateful for the doors CCNY has opened for me.



Kadar He is moving on to the PhD program at the CUNY's GC

Congratulations to Kadar He, who completed his Master's degree in Mathematics this Spring and will be entering the mathematics PhD program at the CUNY Graduate Center starting in the Fall.

Hear about it in Kadar's own words:

I never loved math. It was probably my favorite subject in school, but I didn't like school, so I didn't like math. Plus, the courses I'd taken had been heavily computational, and while I did okay in them, I had no intention of continuing this, and even less so in a formal environment. It was merely an obligation for my next degree, and so in college, I was more focused on my extracurricular pursuits and finding myself as a person, whatever that meant.

It was a failure. I took design courses, joined all the campus clubs and got all the jobs I could find. I never found myself, however. It's pretty tough to find something when you don't know what you're looking for, when, where, how to do it, and can barely verbalize why.

I started exploring math a little bit more during the pandemic. After no longer having it in my day-to-day, I realized that I took its presence for granted, that there was a part of me asking for more. So I picked up a real analysis text and learned about continuity, metric spaces, convergence. It was fascinating, and elegant. I also wanted to learn abstract algebra, which felt alien at the time. Was it even math? Where were the equations?

I enrolled at CCNY to give this a try. In my first year, I attended a lecture by Professor Dennis Sullivan from the CUNY Graduate Center. He talked about 3D geometrization, which is (clearly) important. But what stood out to me was that, by lecture's end, the board was filled with little pictures, arrows, diagrams. There were few formal definitions, Greek symbols, no essays of text. You could feel the language he was using, what each concept was meant to represent, why it was chosen, and how they all connected like a tapestry. He played with the ideas, putting them together in original ways. It was artistic, conceptual, and as intuitive as a piece of novel mathematics could be. "This is math?!" I was incredulous that this is how one of the great mathematicians of our time operated. In that moment, I had crossed the Rubicon, and decided I needed to formally participate in this great fun.

Mathematics is traditionally a young person's game. In the past, I've wondered if some were fed formula(s) that gave them brilliant insights from birth. But those of us who find their

interest a little later—at the ripe old age of post-undergrad—it’s nice to have a chance, too. Are we going to be Galois? Probably not. But neither are you, and in some ways, maybe that’s best for everyone involved.

CCNY gave me that opportunity. It wasn’t easy the whole time—I failed exams, stared at theorems until my vision switched off, and yes, even threw Artin and Munkres across the room at least five times (each). Some problems were grueling, and much of it was technical and symbol-heavy, unlike the style of Sullivan’s lecture. And of course—drill work is necessary. But this is all part of the charm of the experience, and I can thank Professors Gautam Chinta, Eli Amzallag, and Sergiy Merenkov for being my drillmasters. The times I banged my head against the wall were worthwhile, giving me the foundational tools with which I can now use to play and draw little pictures. I also have two years’ worth of courses to transfer into the Ph.D. program at the Graduate Center.

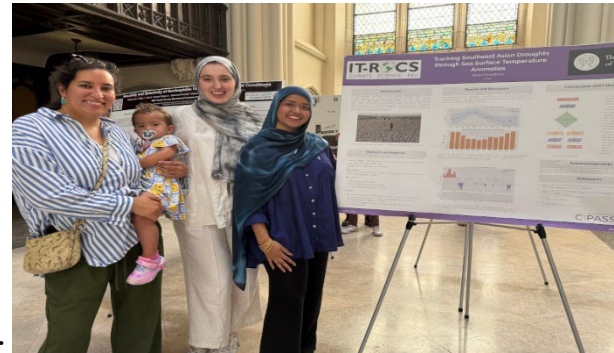
A few months ago, Sullivan taught me that he subcategorized math into concepts, computations, and pictures. It clicked for me. I’d been missing two of these components over the course of my entire math career! I couldn’t verbalize it at that time, of course, but this is what I was always looking for. I’ve done some proverbial homecoming here, solving my original longing.

As for finding myself as a person, that is still an ongoing project.

IT-ROCS REU Students Present Applied Mathematics Research at CCNY

This summer, [IT-ROCS REU](#) students Senanur Bilgin and Atiq Chowdhury presented their mathematics and climate research at the CiPass poster session, demonstrating how mathematics can tackle urgent environmental challenges. They were advised by Dr. Sánchez-Muñoz and mentored by CCNY Master's student Samuel Briante.

In "Learning ENSO Through Data: A Niño 3.4 Index Case Study", Senanur analyzed sea surface temperature (SST) anomalies in the central equatorial Pacific to better understand the El Niño–Southern Oscillation (ENSO). Using Python-based tools, she examined seasonal and interannual variability, confirmed strong anomalies in major El Niño years, and applied Principal Component Analysis to identify the index's dominant variability pattern.



Atiq's "Tracking Southeast Asian Droughts through Sea Surface Temperature Anomalies" studied the 1940–1950 period, which included two major El Niño events tied to severe Southeast Asian droughts. She processed SST anomaly data, mapped seasonal variability, and prepared the dataset for dimensionality reduction and Topological Data Analysis (TDA).

Future work will integrate SST, the Niño 3.4 index, and Total Column Water Vapor into a three-dimensional dataset to track moisture dynamics before, during, and after El Niño events. This project contributes to a broader [Topological Data Analysis \(TDA\) research pipeline in atmospheric science](#), led by Dr. Sánchez-Muñoz, and grounded in "Weather Regimes: A Topological Perspective" by Strommen et al ([watch the talk](#)).

“This summer’s IT-ROCS REU program at CCNY has been an inspiring and transformative experience. As a Computer Science major, I was amazed to discover how open and far-reaching the field of mathematics is, extending into areas like climate science in ways I had never imagined. Working closely with my mentor and participating in hands-on research not only deepened my skills, but also broadened my perspective on what I can do with math. This experience inspired me to pursue a dual major in Mathematics and Computer Science, and it has strengthened my passion for research. I leave this program with new knowledge, confidence, and a deep appreciation for the role mathematics plays in understanding our world.” — Senanur Bilgin

The department celebrates these outstanding contributions as a testament to the IT-ROCS program's mission of cultivating the next generation of interdisciplinary scientists.