Where Light Meets Logic

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Interviewee: Vasanta Lakshmi Kommineni

If the sun were to take on a human form on Earth, it would be Professor Vasanta. That may sound like too much, but as you read on, you will soon understand why. Just as the sun casts its rays onto celestial bodies so that they, too, may emit light, Professor Vasanta shines on the people around her, illuminating their confidence, potential, and sense of belonging. Her care is so genuine and abundant that it makes you wonder, if she gives this much warmth to her students, what must it feel like to be her child? She has a presence like gentle sunlight: reassuring, steady, and powerful enough to quiet anxiety without ever overwhelming you.

I met Professor Vasanta during my very first term at Dartmouth College, when she taught CS 01: Introduction to Programming and Computation. At the time, I was a nervous wreck, constantly questioning whether I truly belonged in STEM, whether I was capable enough, whether I had started too late. Before our formal interview, while I was still her student, I asked her why, of all courses, she chose to teach CS 01 which is the most introductory and foundational computer science class. Her response has stayed with me ever since. She said that this is the point where many students decide whether to continue in STEM or walk away from it, and that she sees it as her responsibility to help students recognize their potential and make the process as smooth and welcoming as possible. That single statement defines who Professor Vasanta is.

Professor Vasanta's academic journey began in India, where her fascination with computer science started at a young age. Her father, a deeply technical man, introduced her to logic gates and challenged her with puzzles that required designing circuits to perform specific tasks. What began as playful problem-solving soon became a lifelong passion. To this day, she solves seven to eight puzzles every day, a habit that keeps her mind sharp and curious. Later, with guidance from a cousin and an aunt, she formally pursued computer science as a major, an experience that reflects how deeply she values family and mentorship. She earned her undergraduate degree from Regional Engineering College (also known as National Institute of Technology), Warangal, India, and went on to receive both her master's degree and PhD from the Indian Institute of Science in Bangalore, India. During her graduate studies, Professor Vasanta worked as a software engineer, gaining industry experience alongside her academic training. Soon after completing her PhD, she joined Dartmouth College, where she is currently a Senior Lecturer. When asked how her work intersects with mathematics, she replied, "Computer science and all I do is mathematical abstraction. Both in teaching and in my

research, all I do is abstract concepts and turn them into mathematical models of different degrees."

Her research exists at the intersection of the technical and the human. On the technical side, Professor Vasanta works in compiler research, addressing a fundamental question: How can we guarantee that a piece of code works correctly for every possible input? This research has profound implications for safety-critical technologies such as self-driving cars and autopilot systems. When these systems encounter scenarios, they were never explicitly trained for, how do they respond instead of failing catastrophically? Through mathematical models and logical reasoning, Professor Vasanta helps create the foundations that make such technologies reliable.

Equally important to her is the social side of her research, which is making computer science more accessible and improving retention in STEM. She studies the gap between students who enroll in introductory courses and those who persist, particularly focusing on students with little or no prior exposure to STEM or those transitioning from high school to college-level technical work. In both strands of her research, mathematics and logic are central. As she explains, logic and mathematics underpin everything she does. Code, to her, is simply a language; the true structure and meaning come from the mathematics beneath it.

Although Professor Vasanta once worked as a software engineer, she always knew her true calling was teaching. As she put it, "I told my parents that I was going to be a teacher, I just didn't know yet what I would be teaching". She had been teaching in some form since middle school, sharing knowledge with peers long before it became her profession. Her desire to teach was so well known that even her professors recognized it, eventually helping her secure a position here at Dartmouth, where she transitioned into academia with enthusiasm and purpose. She describes teaching as her life's calling and sees her extroverted nature as essential to connecting with and supporting others.

Beyond the classroom, Professor Vasanta finds joy in cooking and painting. "I like cooking, and people tell me they like my cooking, so why not?" she told me with characteristic simplicity. Additionally, Professor Vasanta paints. Though she doesn't consider herself an artist, her paintings adorn both her office and her home. Even here, she sees the influence of math: patterns, balance, and structure quietly guiding creativity. For her, math is not restrictive; it is expressive.

At the center of Professor Vasanta's life is her daughter. She attends every swim meet, drives her to and from school each day, and sometimes brings her along to lectures, where her daughter sits nearby, watching quietly or crocheting sweaters at her side. The way she speaks about her daughter, and the care with which she integrates motherhood into her academic life, reflects the same intentionality and devotion she brings to teaching. Professor Vasanta's philosophy is rooted in authenticity and compassion. She believes that no one should change who they are based on expected circumstances. In her words, "we all have strengths and weaknesses, and we should be ourselves, but the only thing is to make sure your weaknesses

do not define you. She believes that we should not be forced to change who we are to fit into STEM. Instead, STEM should expand to include everyone. Through her work, her teaching, and her presence, she embodies that belief. Like the sun, she does not demand that others shine, she simply makes it possible.

About Author:

My name is Chinazom Onubogu, and I am a freshman at Dartmouth College. I plan to major in Mechanical Engineering with a minor in Computer Science, with the goal of entering the field of robotics and control theory. Mathematics has always been at the center of my academic journey. Many of my closest friendships were formed through math classes and competitions. I am currently taking a course in advanced multivariable calculus, continuing to build the mathematical foundation that supports my interests. Outside the classroom, I am actively involved with the Machine Shop, Dartmouth Robotics Team and Dartmouth Formula Racing. Beyond academics, I love dancing and cooking, interests I was delighted to discover I share with Professor Vasanta.