SEEING IS
believing

Students create "aha moments" with math applications

BY HEATHER DARROW • PHOTOS BY NICK YOUNG

THE WHITEBOARD IS FULL of symbols and numbers. The professor talks about bread slices of equal width having the same surface area. You picture the curved ends of a loaf of bread, and the gap between what you see and hear seems greater than the Grand Canyon. Whether you attend college in Texas or China, former Collin College students **Daniel Relix** and **Mito Are** may be able to help you bridge the expanse.

Relix and Are published several mathematical applications on Wolfram while taking math classes with Professor Valeria Antohe. Combined, their five applications had more than 15,000 views and more than 1,400 downloads.

Their interactive publications allow viewers to manipulate data and see for themselves how mathematical concepts and formulas can be applied to spheres, half lives, and vector decomposition. The students completed their published work as part of Center for Advanced Studies in Mathematics and Natural Sciences (CASMNS) projects.

Ultimately, Are hopes to develop programs, like the search engine, that impact millions of people. She earned a Collin College associate of applied science degree and is currently pursuing a computer science degree at The University of Texas at Dallas. She says the CASMNS project and Dr. Antohe's letters of recommendation helped her acquire UTD scholarships.

"I really like puzzles and languages. Programming is like talking to the computer. If there's a problem, I can't stop until I get it to function. Earning my associate degree gave me a sense of accomplishment. It is a testament of my hard work. Professor Antohe's constant support helped us tremendously in making sure that we were doing the right thing and that we finished on time. The programming for the CASMNS project was helpful, and I had never presented in front of professors before. Getting the applications to work was exciting."

According to Dr. Antohe, the CASMNS projects required the students to learn Mathematica programming language, which is similar to C programming, in addition to creating Wolfram applets. She identified class concepts that would be enhanced via animated

Collin's Center for Advanced Studies in Mathematics and Natural Science projects have helped former students Daniel Relix and Mito Are fund their educations.

demonstrations. The students created story boards, generated and tested their applications, and submitted them for publishing.

"Wolfram's Mathematica is a powerful software that allows symbolic manipulations of mathematical expressions including integration, derivation and plotting operations. One of the recent developments is the Demonstrations project that uses the function Manipulate to give anybody access to demonstrations developed by other Mathematica users. This information is available free to anybody in the world with internet access," Dr. Antohe said.

After attending Collin, Relix transferred to Southern Methodist University (SMU) and is currently pursuing a degree in mechanical engineering. He says the CASMNS project has been an invaluable addition to his resumé.

"I feel I owe Collin a lot. I attended a university honors program event at Collin and learned about SMU scholarships specifically for community college students. I received a half ride to SMU. I probably would not have received any scholarships if I went to SMU straight out of high school. The fact that I have the publications on my resumé has been very helpful. Recently I have been interviewing for internships, and companies are asking about the publications and whether I presented my work. These companies are looking for the best of the best. This project is what I have relied on to talk with potential employers."

To learn more about CASMNS, visit **collin.edu/academics/casmns**. For your own "aha" mathematical moment, visit **demonstrations.wolfram.com/StripsOfEqualWidthOnASphereHaveEqualSurfaceAreas**. ◙

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