

The Torrey Pines High School Falconer

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Teacher Abby Brown wins Wolfram Innovator Award

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Feature Editor



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TPHS math teacher Abby Brown was presented the Wolfram Innovator Award from Wolfram Research at the Illinois Wolfram Technology Conference for her work in teaching Wolfram Mathematica software to high school students.

The Wolfram Innovator Award is given annually at the Wolfram Technology Conference in Champaign, Illinois, to a handful of individuals around the world for their contributions in expanding the use of Wolfram technologies, such as the computer language Mathematica.

Mathematica is a technical computing system using Wolfram Language and Java Programming Language to solve real-world problems with computational thinking, a method used to deconstruct a problem and solve it using coding. Regular coding typically involves directly writing code and is known as hardcoding.

"I guess Mathematica is easier. I guess that's the main attracting point for everyone: the ease of use," said Likhit Palabindela (12), who attended the Wolfram Technology Conference. "For other languages, it's more low level where you have to do everything by yourself. But Mathematica has a lot of built-in functions, which you can use for what you want to do, and if you do want to make your own functions, it has that capability too."

A math teacher at TPHS who has taught Wolfram Language for almost 20 years and, in doing so, has significantly increased students' exposure to Mathematica, Brown was nominated for the award by Paul Fish, the Academic Account Executive at Wolfram Research.

Brown qualified for the Innovator Award nomination through her efforts in running "CT at TP," along her years of instructing Wolfram Language and creating original lesson plans that incorporate artificial intelligence with technological material that Brown creates for her students.

"She has been working with a lot of students with Mathematica, and she has been teaching it for 15 years," Palabindela said. "It's [because of] the amount of work she puts in with her students, the amount she uses the software. It's the Innovation Award; she just does so many projects with the software that she got the award." According to Brown, Wolfram employees generally nominate people they work with outside of the company in Wolfram Technologies. Not long after being notified that she was being considered for the award, Brown shared with her students that she won the Wolfram Innovator Award for her extensive work in Wolfram Language, including introducing computational coding to students and spreading interest in the Mathematica program.

Brown has been teaching Wolfram Language over her entire teaching career at TPHS, though the software was initially a demonstration tool which she did not expect would become an integral part of her curriculum.

"At some point many years ago, we were able to get licensing for us to put [Mathematica] on school computers," Brown said. "That was really the difference maker because then I could get my students to be using it and developing activities and things for them to use directly."

The Wolfram Technology Conference in Champaign was held from Oct. 17 to 19. Brown, along with five TPHS students — Palabindela, Shannon Brownlee (12), Ryan Heo (12) and Emily Zhang (12) — and an alumnus, Issac Gelman ('18), attended the conference to give short presentations on their experiences with Mathematica.

Students were chosen to attend the conference based on their interest in Wolfram Language and how they pursued that interest outside of Brown's class material.

Specifically, Brownlee and Zhang were chosen for their code for a training program with Augment Technologies. Palabindela and Heo, on the other hand, were chosen for their participation in the Wolfram 2018 Summer Camp.

Zhang, Brownlee and Brown gave a joint presentation on the supplementary Wolfram Language information

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Brown taught in her classes, and Zhang and Brownlee offered personal insight into the experience as students who have used Mathematica.

"A lot of people at the conference are interested in educational applications for Mathematica," Brownlee said. "People get into college, and they don't really know how to code using a higher level coding language ...

Mathematica is a separate, higher-level programming language, which means it's based off of C++, but it has its own functions that are built in [so you don't have] to hard code everything yourself."

Palabindela and Heo shared their experiences as students learning computational thinking at the summer camp.

The two presentations were followed by questions from the audience.

"A lot of people [were] asking us questions afterwards," Brownlee said. "They were just super interested in hearing from Emily and me [about] our student experiences and what we liked or disliked, what we thought could be implemented in the workplace [or] in school differently, all that kind of stuff."

All four students are in the Computational Thinking Club, otherwise known as "CT at TP", which teaches the logic and mechanisms behind Wolfram Language to students outside of Brown's classes.

"I started [the club] because we have this amazing technology, and I knew that there would be students out there who would be interested in learning more about it," Brown said. "A little selfishly, I use it with my classes, and I mostly teach seniors and juniors, and I thought it could be beneficial down the road if I have students who have more experience with the software before they enter my classes."

Two years ago, members lost interest in the Computational Thinking Club, then called Wolfram Language Workshops, due to disorganization and freely-structured lessons. But last year, a more organized lesson plan has led to greater student interest and steady attendance.

The club has introduced students like Palabindela to Mathematica.

"My friend Ryan [Heo] told me about the club last year, and I wanted to try out different things because college is coming up, and I wanted to know what I wanted to do," Palabindela said.

Brown will attend the Wolfram Technology Conference with students again next year.

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