00:00:03 Announcer

The Missouri State Journal, a weekly program keeping you in touch with Missouri State University.

00:00:10 Emily Yeap

To boost science, technology, engineering and math or STEM education in southwest Missouri. That’s the goal of Missouri State University’s [Computer Science Research Opportunity for Smart Environments](https://apps.missouristate.edu/computerscience/MuSyC/rose/) program, also known as ROSE.

Earlier this year, Missouri State received a three-year, $600,000 grant from the [National Science Foundation](https://www.nsf.gov/) to facilitate this program for area middle and high school teachers.

The first group of seven teachers recently completed a six-week summer research workshop on campus. I’m Emily Yeap.

[Dr. Razib Iqbal](https://search.missouristate.edu/people/riqbal), associate professor of [computer science](https://computerscience.missouristate.edu/) and ROSE program principal investigator, and Dr. Diana Piccolo, professor of [education](https://education.missouristate.edu/), join me today to talk about the program and the first cohort’s experience.

00:00:56 Razib Iqbal

Our goal’s to provide a unique research experience to 30 middle and high school STEM teachers. The College of Natural and Applied Sciences and the College of Education has partnered with school districts in southwest Missouri to help the teachers to enrich their knowledge in next generation Internet of Things and smart environments research projects.

00:01:17 Emily Yeap

There’s also another goal, according to Piccolo.

00:01:20 Diana Piccolo

Another goal is to also embed these computer science concepts into their academic curriculum to really promote and instill with their students the thinking of computer science as a career goal or just better understanding what computer science is about.

00:01:39 Emily Yeap

What did the teachers learn and do in the workshop?

00:01:42 Razib Iqbal

The teachers were involved with three unique projects. One is emotion detection for a smart home environments where the users in the smart home environment communicate with smart assistants like Amazon Alexa, Google Home. Can we detect their emotions from that and based on their emotion, can we help them to automate things to make smart homes smarter?

Another aspect of this research was to look into the security, because we know these days we are dealing with so many different types of devices. So, the IoT security, that was another project and all these smart gadgets, all these smart environment setups are collecting data. So how we can mine these data and make sense out of it was the focus of the third project.

The teachers focused on two different aspects. One is the research aspect, where they worked with us as part of our research team and the second aspect was how they can take this research knowledge back to their classroom.

When I look back, I see that by participating in ROSE, the teachers have made valuable contributions to our ongoing computer science research projects and their insights and experiences provided us with valuable experiences, and they opened our eyes that we could look at things from a different perspective, so it was great.

00:03:05 Emily Yeap

The teachers also worked on one more area.

00:03:08 Diana Piccolo

Throughout the summer, they were not only completing a project aligned with this computer science topic, but they were also putting together curriculum integration ideas for their classroom. And so during the academic year, that will be the goal of the teachers is to actually implement and embed these curriculum integration ideas into their classes that they teach.

00:03:30 Emily Yeap

Iqbal shares what he hopes the program will achieve.

00:03:33 Razib Iqbal

I personally believe that this ROSE RET grant will be a transformative experience for the participating teachers. The way we designed it, the ROSE grant should offer professional development, it should enhance their teaching practices and it will allow the teachers to make positive contributions to both education and research. Also, just by participating in the ROSE grant, I believe it will have a lasting impact on the teachers’ careers and it can positively influence the learning experiences of their students.

00:04:07 Emily Yeap

For the grant team, it's important that ROSE is sustainable.

00:04:11 Diana Piccolo

After the project itself has ended that we have ingrained and really inspired the teachers and the students, that understanding and the importance of computer science concepts and being able to integrate them into their STEM curriculum is something that will be sustained for years to come.

And then also to instill that love of learning of computer science topics and how it's not this isolated content area, it can be embedded in math and language arts and science and social studies. For me, that's one hope, not just during the grant, but afterwards as well.

00:04:47 Emily Yeap

The second ROSE summer research workshop will take place on campus from June 10-July 19, 2024. [Applications are now open](https://forms.office.com/pages/responsepage.aspx?id=5DDYyk9VYUO65chlIz-3f6iHVwIZMWhJsqs22mu0cpRUQVlETVE3SUpNNEYzMUNNUURESFJQSFhINC4u&wdLOR=c86421650-33C3-4AD3-99AD-4B388B5A852C) until Feb. 16, 2024.

To get more details, contact Piccolo at [DPiccolo@MissouriState.edu](mailto:DPiccolo@MissouriState.edu).

I’m Emily Yeap for the Missouri State Journal.

00:05:09 Announcer

For more information, contact the Office of Strategic Communication at 417-836-6397. The Missouri State Journal is available online@ksmu.org.