



PHOTO BY DREW A. KELLEY, CONTRIBUTING PHOTOGRAPHER

Student research assistant Connor Bartholomew, left, and research lead Ankita Mohapatra conduct a fire prevention experiment on the grounds of the Arboretum on Nov. 15.

STUDENT PROJECT

TESTING SOLAR-POWERED SENSORS TO DETECT EARLY-STAGE WILDFIRES

Research could aid quicker response

By Lou Ponsi,
contributing writer

Ankita Mohapatra, assistant professor in the College of Engineering and Computer Science at Cal State Fullerton, recalls driving through Irvine in late October 2020, with a blizzard of ash caused by the Silverado Fire enveloping the sky.

With the soot reigning down, Mohapatra was stuck with an idea.

Perhaps scientists and engineers can use smart technology to develop a system capable of detecting fires in their early stages, well before the flames grow out of control.

"I thought that maybe as engineers we could do something," the professor said. "There has to be some way of finding this out. Right now, it is from urban interface, where people see it. But a lot of fires start out in remote areas where you don't have houses, and they keep spreading."

Joined by a group of fellow engineering and science professors, and with the help of students, Mohapatra's "Engineering Wildfire Mitigation" project got underway.

The research team has developed solar-powered sensors that collect data from the smallest of fires and then relay the data to a central processing station

for analysis.

Using CSUF's Arboretum as the testing site, sensors were recently placed around the grounds for two separate projects.

In one project, the sensors were tested for their ability to detect fires in early stages.

For the second project, infrared cameras were tested for their ability to distinguish between types of fires as well as locate people in the area.

"Early detection could allow for evacuating anybody nearby and contain or extinguish the fire in its early stages," Mohapatra said. "We want to be able to forecast the occurrence of fires as well.

Maybe you can see the humidity dropping and temperature rising. Right now, weather stations do that, but through these sensors, they can have the sensors in very remote places, which can't be measured from a station."

Junior Gerardo Robledo, a computer science major, is part of the research team and said working on research that can possibly save lives and property is rewarding.

"It's been great to work on new things," said Robledo, who plans to pursue a master's degree in artificial intelligence. "This is very close to me. I've had friends lose their houses. I feel like

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PHOTO COURTESY OF MAHTAB MOHAMMADI

MFA student Mahtab Mohammadi's work reflects her Iranian culture and experience.

FINE ARTS

An artist unleashed: Her paintings reflect painful memories of Iran

Mahtab Mohammadi earns grant, prizes

Contributing writer

It's been a landmark year for Mahtab Mohammadi.

The Iranian American artist, an MFA student in drawing and painting who also teaches beginning painting and drawing classes at CSUF, celebrates her 10th anniversary of immigrating to the United States.

She left her home country in her early 40s, a transition she said was financially, culturally, and emotionally challenging.

But she's flourished here as an artist. In her colorful works, Persian, Western, and pop culture images reflect her

bitter memories of the discrimination, war, and violence against women and gender minorities she experienced and witnessed in Tehran.

The Iranian Revolution erupted when Mohammadi was 10. Her father, who was in the military, was rarely around. Her mother, Rohparvar, a strong and independent-thinking nurse, raised her and her two older brothers alone.

"I use patterns of Persian gardens, rugs and tiles in all of my paintings to create in audiences the expectation of seeing scenes of joy, but I incorporate symbols of mortality and grief and sadness to reflect what has gone on in Iran in the past and what is happening now to challenge such expectations," said

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TOP 1%
Best Colleges in America 2022

Cal State Fullerton



Artist

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Mohammadi, a married mother of two grown children who lives in Irvine.

“Maybe it’s fate that I had the opportunity to come here and take my art to the next level,” she said.

Accolades

In February, Mohammadi won a \$5,000 grant from the arts-focused MOZAIK Philanthropy, which also included her oil-on-canvas work, “Untitled,” as well as “Persian Venus,” in a group exhibition. She also received from MOZAIK the first-ever Future Student Art Prize for the “2021 Future Art Awards: Ecosystem X.”

In summer, Mohammadi received a second-place award from a juried show at the Lancaster Museum of Art, which purchased her “Untitled” painting at the end of the show.

And just before Thanksgiving, she received word that another of her paintings, “Now Persian Garden,” was selected by jurors for the University of Montana’s online exhibition of graduate students’ work, “Here, There, and Nowhere.”

Fewer than 6% of submissions are accepted.

Juror Eric Jensen writes of Mohammadi’s work: “Many paintings are containers for memory. This piece is functioning in that way, yet it feels more like a memory that was chosen because the rest of them were too painful. It feels like if the scene moved to the left or right, we would be beholden to terrible violence.”

Added Jensen: “I think that she did an incredible job capturing an essence of (Iranian) history in such a stunning and magical piece.”

Freeing experience

Growing up, Mohammadi always liked art. She trained and worked as a professional artist in her home country. For many years, she worked with realistic master painters and had three solo shows in Iran. A book of her final show in the Iranian Artist Forum in Tehran was published in 2008.

It wasn’t until she came to Orange County that her painting took an entire new direction that freed her to express what she wanted.

Mohammadi, who earned a degree in chemistry from Azid University in Tehran, enrolled at Irvine Valley College to learn English. There, she took a live drawing class — something she never was allowed to do in Iran.

Studying the nude human form, Mohammadi learned about anatomy and proportion (in “Untitled,” her nude male figure is based on Michelangelo’s Renaissance masterpiece sculpture, “David”).

“He (Michelangelo) was brave enough to show his passion for the male body when homosexuality was an unforgivable sin,” she wrote in describing the symbolism in “Untitled.”

Such freedom of expression in Mohammadi’s painting proved revolutionary to her.

She tearfully recalls a female high school student in Iran who suddenly disappeared from class, never to be heard of again, after school authorities learned about her sexual orientation.

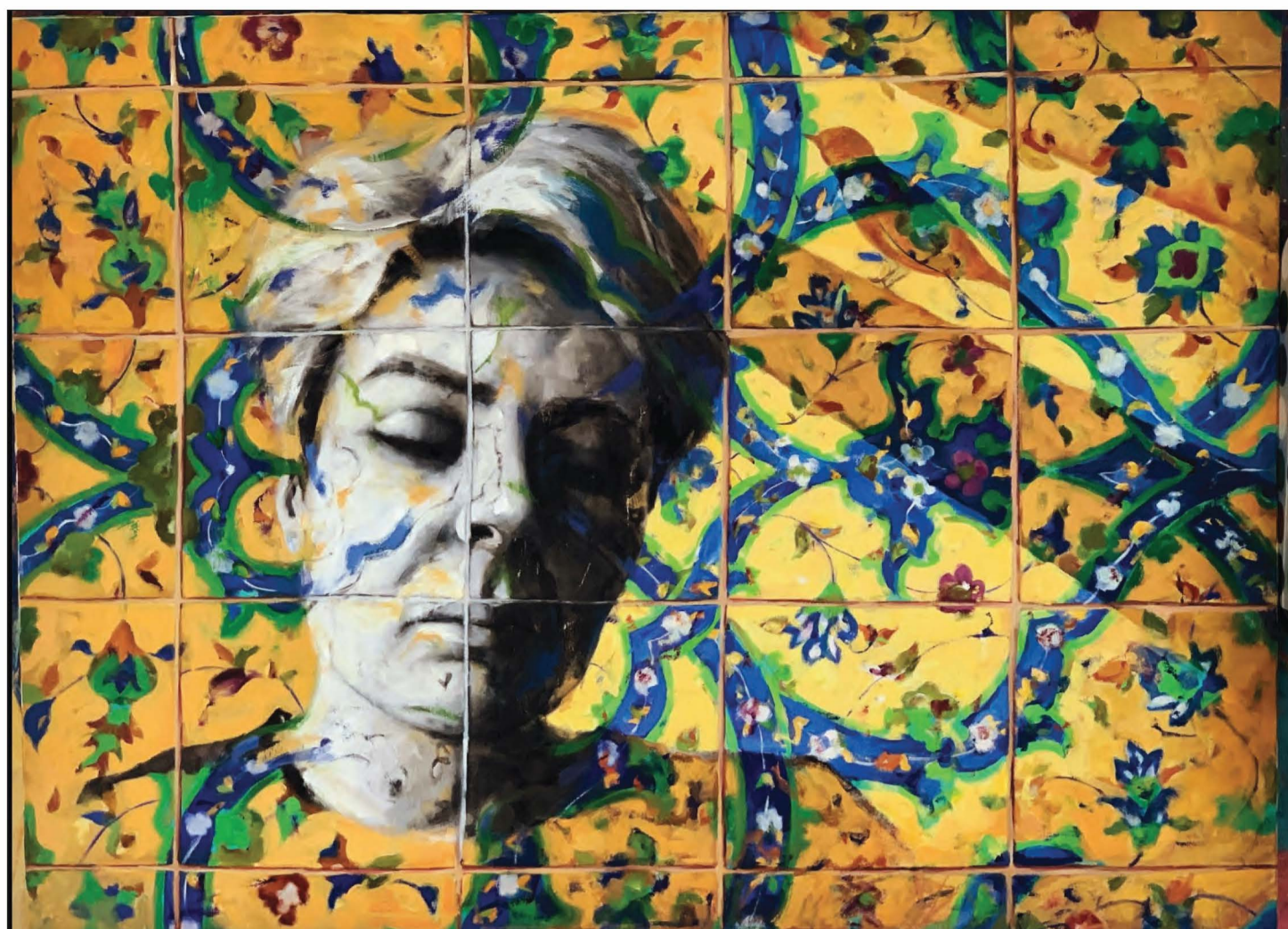
She recalls the bruises on some of her female friend’s faces.

At CSUF, which Mohammadi entered in 2018 after earning an undergraduate degree in studio art from UC Irvine, she painted a series of works whose theme was domestic violence.

Surviving, thriving

Drawing and painting professor and program coordinator Kyung Sun Cho, a member of Mohammadi’s MFA graduate committee, is impressed by her passion and commitment for painting.

“It has been a privilege to support her



“Dreaming of Persian Garden #1” by Mahtabi Mohammadi

PHOTOS COURTESY OF MAHTAB MOHAMMADI



“Now, Persian Garden #2” by Mahtabi Mohammadi

research and artistic development over the last few years,” Cho said. “In her work, she explores the complex history of Iran and her traumatic experience with oppression and gender discrimination.

“As an immigrant, her journey to make a new life in the U.S. is a powerful quintessential American story. It takes imagination and resilience to not only survive but thrive, and she is thriving.

“She’s making significant contributions to the Painting and the Arts Program with her work spotlighting advocacy for women ... (and) her paintings can inspire important discourse in the

classrooms. Her transformation as an artist and teacher has been remarkable.”

Freedom of expression

Of her experience at CSUF, Mohammadi said: “My work has changed drastically since I started my first semester here. I’m very thankful that I had the opportunity to work under the best professors and advisers. We have had many amazing critic classes, plus guest speakers and lecturers, that helped evolve the conceptual and technical aspects of my work.”

In remarks about her work “Untitled,”

Mohammadi asks: “Why should minority groups suffer and be rejected in traditional religious societies? Their lives and their state of being are in serious danger.”

It’s a sentiment that is reflected, in some ways, in all her paintings — and an artistic direction she feels privileged to continue to explore.

“Painting has changed my life,” she said. “It’s something I deeply love and something I’m deeply committed to continue.”

Follow Mohammadi and her work on Instagram at @mahtab_painting

Fire

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this is something important for us here in California.”

The most destructive wildfire in the state’s history was the August Complex of 2020, where fire spread over more than a million acres and took out 935 structures.

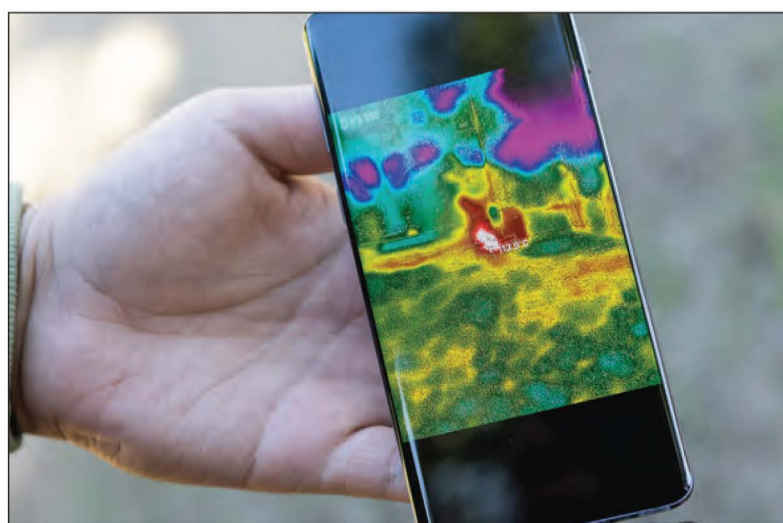
The Dixie Complex Fire in July 2021 burned more than 900,000 acres and destroyed 1,300 structures, and the Mendocino Complex Fire in July 2018 wiped out 459,000 acres and 280 structures.

There have been dozens more. “The biggest part (of the project) is that you get experience that you normally wouldn’t get in your classes,” said engineering major Connor Bartholomew, who joined the team in February. “Coming in and doing a project hands-on gives me experience that is really useful.”

The cities of Brea, Fullerton and Yorba Linda are pressed up against the wildland-urban interface, making early fire detection critical in the area, said Dave Pargee, fire prevention consultant with the Fullerton Fire Department, who was at the Arboretum for the project.

“I was intrigued when I saw the scope of testing that was going on,” Pargee said. “From what I’ve seen in my experience, this is an important type of study. The quicker we can get on them, the smaller we can keep them. Structure protection is a lot easier that way.”

When Mohapatra and her team were considering locations to conduct tests, Arboretum director Greg Dymont suggested they use the 26-acre botanical garden on the northeast corner of the cam-



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Student research assistants Connor Bartholomew and Gerardo Robledo conduct a fire prevention experiment with research lead Ankita Mohapatra on the grounds of the Arboretum.

pus as the testing ground.

“It’s kind of exciting because now we are sort of out in the wilderness with real equipment, and our graduate students

are able to actually have a fire and test their equipment to see if they are on to something, instead of going off to the Mohave Desert or something,” Dymont said.

“That is what the Arboretum is. It is basically the outdoor classroom for Cal State Fullerton. We have all kinds of research going on here. This is just one example.”



Robledo prepares to light firewood during a fire prevention experiment.