



THESE PROFESSORS ARE SHARING THEIR PERSONAL
INDUSTRY EXPERIENCE IN THE CLASSROOM

■ *By* AMY WAGNER

■ *Photographs by* BILL CARDONI

School of Engineering (SoE) faculty are distinguished by world-class academic credentials, research portfolios, and awards and recognitions for their research and teaching. But that's not all: a number of professors have deep experience in industry that informs their teaching — and benefits their students.



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• LABAZZO •

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“INVOLVE ME AND I LEARN”

Emina Soljanin joined the Department of Electrical and Computer Engineering (ECE) as a professor in 2016 after a 21-year career as a distinguished member of the technical staff of Bell Labs’ Mathematical Sciences Research Center. At SoE, in addition to teaching, she continues to research storage access in cloud and edge storage systems.

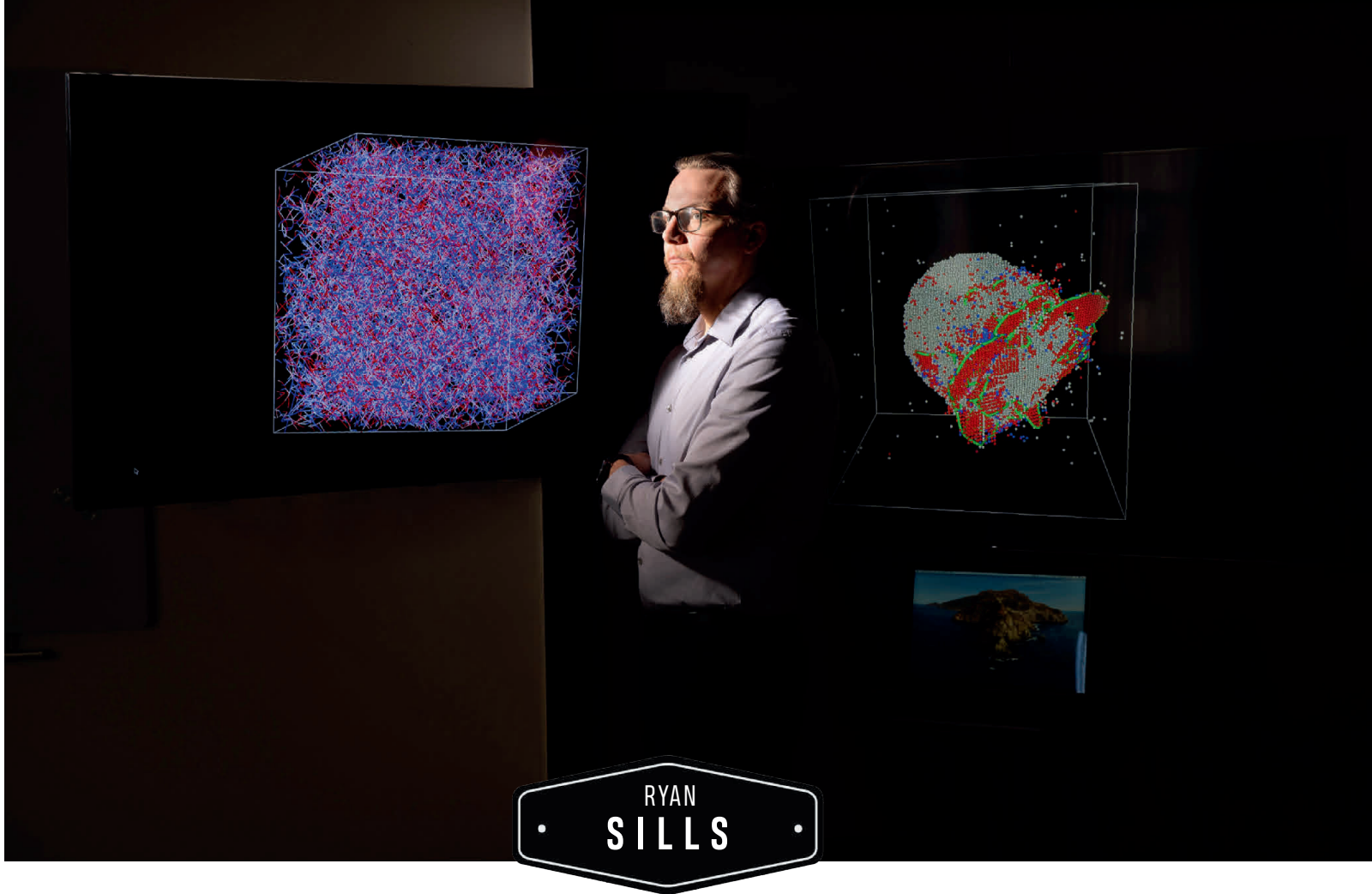
Soljanin recalls that at Bell Labs she worked to prevent and correct errors in data storage and transmission for everything from cell phones to cloud storage. “I was part of a team that implemented the first error corrections in optical transmission,” she says. She also mentored post-doctoral students at Bell.

When the number of people working in computer science and mathematics at Bell had shrunk from 150 to about 15, she decided to make the switch from industry to academia. “It was hard to tell my boss I was leaving, but he said that while he was sorry to see me go, he knew how much I liked working with students.”

Soljanin’s goal is to provide her students with a good learning experience. “You want to guide them. When you come to the classroom from industry, you know what matters,” she explains. “It’s a challenge to explain very hard concepts to students and to introduce them to things they can’t just google or find in a book. They need a professor with a certain experience to do this.” And as a professor, it’s a challenge she readily embraces.

Soljanin believes that her time at Bell has also made her a more effective mentor. By calling on her many industry colleagues and contacts, she has helped a number of students land internships — even during the height of the pandemic.

She acknowledges the value of first-hand, real-world experience in the classroom. When describing her practice of assigning hands-on projects to help students master highly theoretical subject matter, Soljanin



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simply quotes Benjamin Franklin: “Tell me and I forget, teach me and I may remember, involve me and I learn.”

FINDING FREEDOM

In 2019, after nine years at Sandia National Laboratories in Livermore, California, assistant professor Ryan Sills joined the Department of Materials Science and Engineering. “I wore two hats when I was there,” he recalls. “I was hired there with a master’s degree in mechanical engineering and got my Ph.D. in mechanical engineering. I’ve always been on the fence — doing materials science while in mechanical engineering departments.”

At Sandia, his work included developing components for national security applications and designing products for storing high pressure hydrogen isotopes.

While Sills also served as a primary investigator (PI) for a Sandia research portfolio, he decided to leave the lab to gain greater personal research freedom. “I wanted to be able to study whatever I wanted. If I have a good idea, I want to be able to act on it,” he says. “I’m the type of person who doesn’t want to work on the same research project for ten years. So far, my move to Rutgers has worked out great.”

At Rutgers, his Micromechanics of Deformation (mMOD) research group — which builds on his time at Sandia — currently involves both undergraduate and graduate students in various projects at the intersection of multiscale materials



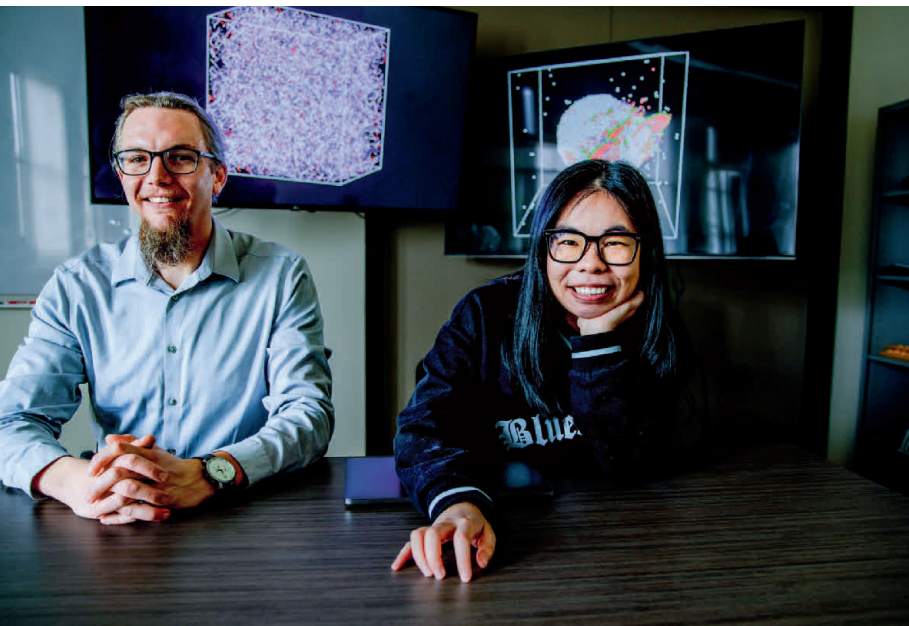
modeling, deformation micromechanics, and mechanical performance of materials.

“The biggest thing my experience at Sandia did was to inform and frame my thinking about research in materials science,” he says. “Collaboration is very easy in national labs and that experience has enabled me to think in an interdisciplinary way when working with microscopists, chemists, experimentalists, and others.”

Sills relishes his time in the classroom. “I love when in a lecture I can turn around from the board to see the involuntary nod students give when they get it,” he says. “Connecting with engaged and excited students is so gratifying.”

While the classes he teaches are highly theoretical, Sills introduces new topics by first listing applications where they are relevant and giving examples he is familiar with from firsthand experience and knowledge. “This makes me a better teacher. It’s not just about sharing textbook knowledge, it’s also about firsthand knowledge.”

Assistant professor Ryan Sills with doctoral student Qianqian Zhao.



COMING HOME

After earning her Rutgers doctoral degree in biomedical engineering (BME) from the School of Engineering, Kristen Labazzo spent ten years at Celgene Cellular Therapeutics (CCT) before returning to Rutgers in 2015. Today, she is a BME associate teaching professor and undergraduate director.

At Celgene, she gained expertise in cutting-edge research involving biomaterials, stem cell biology, and tissue engineering and regeneration, becoming a principal scientist in cell therapy research before taking on her final role as scientific communications senior manager.

“Networking and knowing how to talk to people was a common theme for me,” she recalls. “I always knew I didn’t want to stay behind the bench my entire career.” Ultimately, a change in company direction gave her the opportunity she needed to redirect her career focus.

“BME distinguished professor Martin Yarmush gave me an opportunity to come back as executive director of the department’s Medical Device Development Center,” says Labazzo, who also holds an MBA in technology management from NJIT.

Eventually, her SoE role expanded to include teaching. She admits she was nervous to confront her first class. “My mom said to ‘just be you and it will go great.’ I cracked a joke the first day of class and the rest is history,” she remembers. “We had so much fun.”

Her success in the classroom was recognized by Rutgers in 2021, when she received a Provost’s Award for Excellence in Teaching Innovations and when her students nominated her twice for the Engineering Governing Council’s BME Professor of the Year Award.

“I love interacting with my students. I throw my heart into my time with students,” she says. One of the ways she does this is by bringing real world examples from industry into the classroom.



Associate teaching professor Kristen Labazzo provides lab instruction to BME junior Shannon Bertin.

“I teach a core foundational materials class, so I always try to connect to real world experience, which is something I might not have thought to do if I hadn’t had industry experience,” she says. “I give one lecture focused on industry and pepper the class with examples.”

An active mentor, Labazzo established an ongoing partnership with the Matheny Medical and Educational Center for children and adults with complex developmental disabilities in 2016. The collaboration includes an annual week-long immersion program for BME students as part of their senior design capstone project.

Labazzo, who chairs the Matheny School board, says, “The Matheny partnership was career-changing for me, as I’ve mentored more than 160 students in senior design over the years.”

A lifelong learner, Labazzo is excited to again tap into Rutgers’ many resources. “I’ll be starting my certificate in counseling this fall at Rutgers School of Health Profes-

sions and eventually hope to get a license,” she says. “As BME undergraduate director, I want to have the tools to better understand and support the student body. I like to speak different languages — and would like this knowledge in my tool kit to be more cognizant and helpful.”

LEARNING BY DOING

Before joining the Department of Mechanical and Aerospace Engineering faculty in January 2019, Laurent Burlion gained 15 years of industry experience working at the French Department of Defense as a missile guidance and control specialist and at ONERA, the French Aerospace Laboratory, as a research scientist.

“It was exciting to live and work in the birthplace of the Aéropostale, the center of the European aerospace industry,” he says. His ONERA research focused on flight



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safety, including working with Airbus on gust load alleviation or autonomous landing for the next generation of civil aircraft. He also worked with the French Space Agency on satellite attitude and orbit control systems (AOCS).

While at ONERA, he received a scholarship to spend a sabbatical year at the University of Michigan. Once he and his family got their bearings and began enjoying their American experience, Burlion says he decided to apply for teaching positions in this country.

SoE became an especially attractive choice once he learned about its new aerospace degree and opportunities for space and drone research. “It was very exciting to

apply to Rutgers at that time,” he recalls.

For Burlion, teaching is a truly rewarding experience. “I deepen my knowledge each time I teach. I love meeting new students and getting new questions and ideas,” he reports. “And my students keep me young and enthusiastic.”

His deep industry experience colors his approach to teaching. “I think a teacher shapes students’ minds and trains them to pose problems and find a way to solve them. My first experience taught me not to expect my students to use everything I teach them,” he says. “That happened to me — I had a general, solid engineering background but hadn’t studied aerospace before joining a ballistic and aerodynamic research center at the French DoD. I had to work on a new topic, and I always keep that in mind when I teach.”

Even more impactful was his experience at the ONERA campus, which had a big research lab next to the main French aeronautical engineering school. “Researchers at ONERA not only worked on exciting aeronautical projects like the Concorde or Airbus, but also taught at the engineering school. So, I started to teach there in parallel to my research activities.”

As a result, Burlion says he’s a pragmatic professor who is less inclined to lose himself in theoretical detail. “My industrial experience helps me focus my courses on what is most useful to students. I try to show them how the concepts we study are applied to industrial problems. And, I’m a stronger believer in learning by doing,” he confesses.

In the final analysis, Burlion, like his colleagues, firmly believes that “success is guaranteed when you provide your students with a concrete example based on your personal experience during a lecture.” **SOE**

Assistant professor Laurent Burlion and MAE student Nikita Kartashov fly a drone in the Buehler Aerospace Lab.

