Stepping into Wean Hall for the first time, David Gray Widder saw the names on the office doors and knew he was in a different world. There was Mary Shaw, the computer scientist who received the National Medal of Technology and Innovation from President Obama. On the way to his first meeting, he passed the offices of other big names, like David Garlan and Claire Le Goues. For Widder, these computer scientists might as well have been rock stars.

A rising senior studying computer science at the University of Oregon, Widder spent the summer of 2016 doing research at Carnegie Mellon's top-ranked software engineering program through the university's Research Experiences for Undergraduates in Software Engineering (REUSE) program.

“I don’t belong here,” he thought to himself as he looked at the wall plaque on campus listing CMU’s 12 Turing Award winners.

Nagging self-doubt persists among participants of the REUSE program. Joshua Sunshine (CS 2013), systems scientist in the Institute for Software Research (ISR) and director of the program, told a diverse group of some 20 undergraduate program participants that impostor syndrome is perfectly normal. “Everyone feels like they got in on a fluke,” Sunshine said. “I still feel that way.”

But Widder did belong. The 24-year-old is now a Ph.D. student at CMU, researching how people choose the right development tools in open-source communities, as well as inclusion and diversity in those communities. Like many of his fellow REUSE alumni, he says the program gave him crucial skills and much needed research experience to prepare for a top Ph.D. program in computer science.
“These are amazing people doing amazing things.”

— Joshua Sunshine (CS 2013)

“There may be people who come from a super-religious background and everyone in the family lives in the same town, or someone who goes to a regional public school close to home,” said Sunshine, who also serves as the principal investigator of the program’s NSF grant. “Despite the fact that an elite university might offer them generous financial aid, they don’t necessarily apply. They might have to care for younger siblings, or being away from home might come at a big cost to the family.”

Widder said he couldn’t afford Carnegie Mellon as an undergraduate. Without REUSE, “getting into a top-tier graduate school would have been a long shot,” he said.

Many of the people involved with high-level computer science graduate research attended elite high schools and competitive universities like CMU. “They have a different understanding of what classroom learning means than someone who came from a low-resource school,” Sunshine said.

However, students from diverse backgrounds have unique experiences that become strong assets when tackling larger-scale societal problems such as food scarcity. “We want to build tools that everyone can use,” Sunshine said. “That’s why it is so important to have diversity.” As it turns out, adding diversity not only provides important opportunities for the students and diversifies the field, it also makes for better science.

Garrett’s desire to go into research is common among REUSE participants. Eighty-six percent of the students who complete the REUSE program and graduate from college are doing research in graduate school or a major lab, Sunshine said.

During their 10 weeks on campus, students live in the dorms and go on group outings in the city. Widder was a social coordinator of his cohort, organizing trips to Kennywood and the museums, and planning family-style dinners. This social component strengthens the bonds of friendship and helps reduce the stress of working through the challenges that arise doing top-level research.

“You are navigating in a space where you don’t know what you are doing,” Widder said.

For additional support, Sunshine trains graduate students to mentor REUSE participants. Some students who take on these leadership roles incorporate mentorship into their plans for the future, as Sunshine did with his own career path.

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Garrett co-founded a student organization called STEMulate as a way to increase diversity and inclusivity in STEM fields. One of the goals of the group is to help members enroll in quality summer programs such as REUSE.

“These are amazing people doing amazing things,” Sunshine said.

Interested in REUSE’s mission to foster diversity in research? Learn more about the program and how your support can enrich the lives of brilliant young scholars like Courtney, Kalil and David by visiting cs.cmu.edu/funds/reuse.

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