Undergraduate mechanical engineering students Tam Nguyen, a senior, and Serrae Reed, a junior, focus on their studies with the precision of the engineers they are becoming. Upon graduation, Nguyen has an engineering job nailed down at Shell, and Reed is conducting research on solar cells and the efficiency in which light is harvested for energy production.

That’s the kind of attention and dedication it takes to be named a Cullen College outstanding student for 2016-2017, a title they’ve both captured. As it turns out, the pair is so outstanding they are both back-to-back winners.

Outstanding junior Serrae Reed

It’s a good thing Reed is an engineering major: She is a study of energy in motion. Her days are filled with meetings, on one project or another, or with one of two writing groups she formed for youngsters.

“I wear comfortable shoes, I have to get around really fast,” she laughs.

Reed is a fast mover, fast thinker and as bright as the solar cells she’s developing. She’s deeply immersed in research with thin film photovoltaics to make solar cells from a more affordable and efficient semiconductor,
gallium arsenide, rather than the traditional silicon. That work is financed through a stipend she received last year from the Houston Scholars Program, the same year she was named outstanding sophomore by the Texas Society of Professional Engineers who seem to have created the award just for Reed. It was their first year to give such an honor.

Pretty amazing research for any scientist, let alone one at the age of 20. Reed credits her parents for the upbringing to succeed and give back.

"It was a pretty strict upbringing," says Reed. "We had to go volunteering on Saturdays and I remember once crying, asking them why we had to go out every Saturday," Reed recalls. She says her mother promised she'd remember the importance of it one day, and indeed she has.

At UH Reed launched two writing-related programs, each to voluntarily tutor youngsters. She created her first group, Writing to Inspire Successful Education, as part of the UH Bonner Leaders Program.

"Our objective is to improve writing skills, increase college aspiration and raise the test scores of our partner school, KIPP Intrepid," said Reed. "Her aim is to obliterate the education gap that occurs between low-income students and their more affluent peers."

Seeing the success of her efforts, in fall 2016 Reed developed the Houston Scholars Writing Workshops for 11th graders as they prepare their college essays.

Again she tracks back to the influence of her mother, a successful writer and therapist, and her father, a former geophysicist and financial advisor in the oil industry, for her mix of interests.

Pursuing a master's degree is definitely next for Reed, but she's still trying to determine which specialty she'll pursue. In the fall she went to Shell's Drilling and Production Training Camp and now she's preparing for her summer internship at the LyondellBasell Channelview plant.

"I'm trying to get as many experiences under my belt before I concretely choose something," she said.

No grass growing under those comfy shoes for this outstanding junior.

Outstanding senior Tam Nguyen

Tam Nguyen is closing out her undergraduate career with the outstanding student award for the second year in a row. Though she graduates soon, she's not coasting. At times she's worked two or three jobs along with a full course load to reach her goals.

Currently working away on her honor's thesis, she's exploring thermal batteries with an eye on making them more efficient. Thermal batteries use the differences in temperature to produce power. She's also working on her Capstone Project with the Society of Automotive Engineers to build a Formula One-style race car from the ground up to compete in the Formula SAE Series (FSAE) races.

Nguyen's part is to create the engine dynamometer that measures the horsepower and torque of an engine. With those measurements in hand, the car's performance can be increased and maximized for racing.

"Building a dyno has never been done by the UH-FSAE team before," said Nguyen proudly.

She's also active in the UH Society of Asian Scientists and Engineers, currently serving as senior advisor. Last year in her prior role as president she tripled the group's membership.

Nguyen says it's her basic personality that drives her forward.

"I always strive for the best," she said. "I see hurdles and obstacles as opportunities." She must. Leaving her
family behind in her native Vietnam, she travelled to Houston, alone at 17, to live with an aunt. She didn’t know much English yet, but was determined not to see obstacles. So she learned the language and got an associate’s degree at a community college before applying to UH.

“I wanted to make a better future for my family,” she said.

And so she has. One month ago she brought her brother over to live in Houston and this summer her parents will follow, all of them living together with her husband of four years. Her parents will make it just in time to help raise the new baby she’s expecting.

Nguyen is a study in balance, taking on all roles with ease. Launching a baby and career at the same time, no hurdles here? not for Nguyen.

© University of Houston Cullen College of Engineering