Students at the University of Minnesota, Crookston are developing quality assurance software for the installation of a detector that will be part of the world’s most sophisticated neutrino experiment. Neutrinos are atomic particles similar to electrons except they are electrically neutral. Their mysterious behavior will be studied at the new NOvA Detector Facility near Ash River, Minnesota, located southeast of International Falls. NOvA is the acronym for NuMI Off-Axis Neutrino Appearance experiment.

The Department of Energy’s Fermi National Accelerator Laboratory, currently under construction, will send an intense neutrino beam from Fermilab in Illinois to the NOvA Detector Facility, the international laboratory of the University of Minnesota’s School of Physics and Astronomy. Neutrinos travel the 500 mile journey in less than three milliseconds. (For more information, visit www.fnal.gov/pub/recovery/projects/nova.html)

One of the students working on the software project under the direction of Associate Professor David DeMuth, Jr., has been Michael Schliep, a December 2011 software engineering graduate. Schliep, along with three other students have worked on different aspects of the software according to detailed specifications required for the project. Once in place, students from Crookston will be involved in maintaining the software as well.

“One of the most important things I have learned from the NOvA installation software project has been teamwork,” Schliep reflects. “We worked with many different people across the project and in many ways the project was even bigger than I first anticipated. It taught me the value of working together as a team and demonstrated how critical teamwork is to getting things done.”

Schliep started on his part of the project in May 2011. It also fulfilled an internship requirement he needed as a software engineering major. The involvement in real-world projects is one of the things that Schliep says he enjoys about Crookston. “I knew when I was graduated from high school that I wanted to attend one of the U of M campuses,” Schliep explains. “Martin Lundell, who taught in
Michael Schliep graduated in December 2011 with a degree in software engineering.

the Math, Science, and Technology Department, sold me on the idea of coming to Crookston.

“In only my second semester on campus, I was involved in a development project. That’s what I love about this campus—the opportunity for me to be involved in development projects right away.” Schliep wasn’t the first in his family to graduate from the Crookston campus, his sister, Katherine, graduated with her bachelor’s degree in animal science in 2011, and his father, David, graduated in 1978 with an associate degree in diversified agricultural production when the campus was a two-year technical college.

One of Schliep’s favorite projects was one he worked on with Associate Professor Jingpeng Tang. “I assisted on a joint project he had with the University of North Dakota working on smart grids,” Schliep shares. A smart grid is a digitally enabled electrical grid that gathers, distributes, and acts on information supplied by agents. While the project has since taken on a different direction since he was involved, Schliep still recalls how much he enjoyed this kind of real work.

The future for Schliep includes plans for graduate school, and eventually he would like to work for a company in the area of research and development. He is enthusiastic about where his career might take him. “The field of software engineering is a wide open growing one,” he says. “I am excited about the possibilities and potential for employment.”

Involvement with faculty in research broadens a student’s academic profile and deepens the level of engagement. Students forge valuable relationships and gain exposure to the rigors of research. It also may help uncover a hidden talent or a passion to pursue all while working side-by-side with their professor. Those kinds of opportunities are priceless and can significantly influence a future career. At least it sure seems to be the case for Schliep. All that remains now is to see where his experiences take him.