

Students benefit from industry-standard learning experiences, visits to the local university campus, and personal contact with individuals engaged in game design and computing fields. They also have opportunities for scholarships offered exclusively to CART students. Their experiences create realistic expectations for a variety of CS careers and a path for achieving their career goals.

DeVry University, in turn, benefits from a pool of highly-qualified students ready to move to the next step in their education and career path because they have had an opportunity to deeply explore career options.

John Saechao, Interactive Game Design teacher, points out, “A partnership between a school and another community organization such as DeVry University, creates bridges for students. Students see how their high school experiences connect to, and build a path to their future.”

CART depends on business partners to help refine curriculum, to develop projects for students, to provide field trip locations, and to identify guest speakers—all an integral part of the quest to keep students engaged in school. In addition, community partners have been instrumental in donating needed equipment, making monetary contributions to offset program costs, and providing internship opportunities for students. Community partners hire our students for summer jobs—a tangible reward that inspires many of our students during the school year.

College Connection

Bemidji State University

Editor's note: *This dialog with Marty J. Wolf of the Math and Computer Science Department at Bemidji State University (BSU) is a continuation of our series of interviews with CSTA institutional members. Please share with your students these details about the computer science (CS) programs at Bemidji State University.*

Bemidji State University is located on the western shore of Lake Bemidji in Bemidji, Minnesota, just 60 miles from the headwaters of the Mississippi River.

BSU has an enrollment of about 4000 students. Students can earn a Bachelor of Science degree in Computer Science or Computer Information Systems—or both! The CS degree has two emphases. One is the Professional Emphasis, which is a traditional CS degree designed for students planning to enter graduate school or to work in the computing industry. The Integrated Emphasis is designed for the student interested in combining CS with another interest and area of study.

CSTA: What draws students to your program and what keeps them there?

Wolf: We make our program accessible to all students, regardless of how much experience they have had with computing. Our program begins with the Problem Solving and CS course which prepares students to understand the problem-solving process. Students continue in our program because it is small and the faculty is interested in helping each student. In addition to traditional CS topics, students are challenged to think deeply about the social and ethical implications of computing technology and to push themselves to excel.

CSTA: What skills can students acquire before college that will help them succeed in your program?

Wolf: As obvious as it might seem, students who can read and follow a set of directions have a real advantage. In addition,

students who are curious, willing to explore ideas, and able to work on teams are successful in our program. Students also find that a solid background in high school mathematics, as well as knowledge of a variety of topics outside of computing, helps them on their path to success.

CSTA: What cool careers are your graduates prepared for?

Wolf: While most of our students take jobs where they are developing software, many are employed in industries they would not have initially expected. Some of our graduates work for big name companies in the software field. We also have graduates working in insurance, education, medicine, energy, manufacturing, and geographic information systems.

CSTA: What topics will students study?

Wolf: Students study JavaScript, Python, and C++ in their first three semesters. In addition to a variety of programming languages, students study computer organization, software engineering, as well as social and ethical issues in computing. Students also select courses about databases, networking, graphics, Web programming, operating systems, and compilers. View the complete list at www.bemidjistate.edu/academics/catalog/0910upcatalog/CS/bscs.html.

CSTA: Tell us a bit about the social environment of the program.

Wolf: A great feature of the social environment at BSU is our CS Club. The club is very active, engaging in activities that range from wing-eating contests and gaming to presentations from alumni and industry experts. An activity that demonstrates the character of our CS Club, is the weekly visit to the Boys and Girls Club where members teach students to program with Alice and Scratch. Another big social event is an annual regional programming contest in which several teams put their problem-solving and programming abilities to the test.

CSTA: What distinguishes your school and program from others?

Wolf: We have a small, tight-knit school and program. All of our students are on a first-name basis with the faculty. Our CS labs provide a cooperative learning atmosphere and a place for both formal and informal learning.

Classroom Tools

Culturally Relevant Computing

Ron Eglash, associate professor of science and technology studies at Rensselaer Polytechnic Institute, developed a series of interactive, Web-based teaching tools that are capturing the interest of students by connecting math and computing concepts to their heritage and contemporary culture.

The suite of 11 computer software programs focus on individual facets of African American, Native American, or Latin American culture, where math plays a role in design. The applications, called “culturally situated design tools,” enable students to apply complex concepts to traditional designs found in cornrow hairstyles, Mangbetu art, Navajo rugs, Yupik parka patterns, Pre-Columbian pyramids, Latin music, and others.

Research suggests that these tools can raise math achievement and may improve technological career aspirations for ethnic minority students. Explore the design tools and accompanying teaching resources at www.rpi.edu/~eglash/csdt.html. Listen to Ron’s experiences with cultural computing in a CSTA Snippets Podcast at csta.acm.org/Communications/sub/Podcasts.html.