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Cross Campus Collaborations

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By Sarah Asp Olson

*As a computer scientist and a champion for accessibility,
Dr. Guario Salivia works across campus to come up with tech solutions that work for all.*

When Dr. Guarionex (Guario) Salivia, an assistant professor of Computer Information Sciences, talks about his work, you get the sense that, apart from teaching and advising, he's not often holed up in his office.

"I am basically running around campus all the time," he says.

In some ways, it's the nature of Salivia's specialty—human computer interaction, it's a highly interdisciplinary branch of CIS that requires Salivia to seek out collaborations. His passion for making technology accessible to individuals with disabilities only feeds his eagerness to find solutions that work for students across campus.

"The good thing about Guario is that he has a very interdisciplinary mind," says Dr. Jose-Javier Lopez, a Geography professor. "He has a very broad academic background. He can work very well with natural scientists, but he's a humanist too, so that helps him work with people in areas of literature and technical writing. He's a person who is well-versed in many areas."

Salivia has participated in a number of interdisciplinary collaborations during his time at Minnesota State Mankato. Here's a look at three that have had positive results both on campus and off.

Accessible Maps

One of Salivia's most recent projects was born out of a conversation with Lopez.

Years ago, Lopez taught a visually impaired student who was a passionate learner and excelled in class. "He was able to master the theory quite well," says Lopez. "But, whenever I showed a map he could not participate as actively. That's something that stayed on my mind for several years."

Lopez brought up the topic over lunch with Salivia, and the two began to brainstorm how they could create a map for the blind. The result, now in the prototype stage, is specially programmed tablets that use sounds, voice identification and vibration to allow students to explore geography without the use of sight.

Students use their hands to explore a map; the surface of the tablet vibrates in certain areas in response. The map also voices the names of locations, like mountain ranges, rivers and geographical landmarks.

"Guario was also able to link different locations on the map with sounds, so for example, the visually impaired student touches a lake then the tablet will emit a sound similar to waves or water," Lopez says.

American Thyroid Association Calculator

The American Thyroid Association was seeking a mobile update to an online calculator that allows doctors to calculate Calcitonin and Carcinoembryonic Antigen (CEA) Doubling Time; Change in Thyroid Nodule Volume; and Thyroid Cancer Staging. They turned to Professor of Biology and thyroid specialist Dr. David Sharlin and Salivia to develop the mobile app.

Through the process of developing the app, Salivia and another colleague, Dr. Saeed Moaveni, discovered a gross underestimation of tumor volume based on the tumor's current volume and were able to point it out to the ATA.

"This clearly indicates that Guario was not just passively developing the mobile application, but fully engaged in its science," Sharlin says. "He is one the best collaborators I have ever worked with and because of this, I will find reasons to work with him in the future."

The iOS version of the ATA Calculator was released in 2014, and Salivia is currently at work building the Android app.

The UX Lab

User Experience (or UX) gauges a person's overall ease or enjoyment when using a product or website, Measuring it can give companies and web designers an idea of the efficacy of their products and messages.

"I can prove very simply with a couple of math equations that there's a big economic benefit to testing things early and testing things often," Salivia says.

Thanks to Salivia, Minnesota State Mankato has its own UX Lab, which opened in the fall of 2015 with three primary goals: to act as a classroom resource for teaching user experience and usability; to foster a usability culture University-wide; and to provide testing facilities for local industry professionals.

Salivia set up the lab as a joint venture between CIS, Technical Communications and Information Technology Solutions (ITS)

using Strategic Priority Funding. When that ended, he took on a new partner: the student-run consulting firm, Bureau 507.

It's a mutually beneficial partnership in that B507 maintains the space and can offer University and external clients high-level UX testing.

"We can train students. We can foster the usability culture, and we can enhance our products by means of conducting research-based testing methodologies," says Salivia. "The hope is that in time people will realize the benefits you can get from doing UX testing and that it would be ingrained in [future] developments."

Salivia is a natural collaborator. This is likely because of his area of specialization, his personality or some combination of factors. However, it is clear that he has found the spirit of partnership is reciprocated among his Minnesota State Mankato colleagues.

"It is the people I have interacted with at Minnesota State Mankato who have fostered and supported the collaborations," he says. "People see the importance of technology being accessible and easy to interact with, which I guess helps them prioritize the type of work I do, thus enabling many projects to come my way."