

REACHING NEW HEIGHTS: KEVIN GILL '11G, Computer Science

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Is there life on Mars? Kevin Gill thinks so—or, at the very least, water.



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As a software engineer and developer, there’s never a dull moment for **Kevin Gill**, a 2011 graduate of Rivier’s Master of Science in Computer Science programs. He recently used an algorithm he developed for a project when he was at Rivier to generate a set of hypothetical images that portray Mars as a living, vibrant planet with oceans, oxygen-rich atmosphere, and a green biosphere. And that was just the beginning.

Gill initially shared the images on the social network Google+, but before he knew it—within one week—he was fielding questions from journalists from across the Internet, and his images had gone viral. Outlets such as Fox News, Discovery News, Universe Today, and Huffington Post featured Gill’s impressive work. A couple of NASA groups even shared the images on Twitter.

As successful as he has been—he currently works as a senior software engineer for Thunderhead.com and previously worked as a senior software engineer and developer for Fidelity

Investments—Gill says he wouldn't be where he is today without the knowledge and guidance he was given during his time at Rivier.

“As the images were trending on Google and Twitter, I thought of how it wouldn't have been possible without what I had learned back at Rivier,” says Gill, whose software development concentration provided him with key skills to develop these images. “I simply could not have done any of this if it weren't for that. The software I rendered the images in is my own, and is a continuation of the code I wrote for my professional seminar project at Rivier with Dr. Vladimir Riabov. The graphics and algorithms are what I learned with Dr. Greene, and Java from Dr. Pitts.”

Gill grew up in Nashua and immediately after graduating from Nashua High School in 1998, left for the U.S. Marine Corps rather than attending college, where he served in Japan and North Carolina for four years. After his discharge from the Marines, he worked for a while until, at his wife Stephanie's urging, he started his undergraduate studies at a Massachusetts university in 2004. Following his graduation in 2009 with a Bachelor of Science degree in information technology, Gill began looking into graduate computer science programs. His wife had recently graduated from Rivier with a master's in special education and recommended that he look into the program. Rivier had the computer science program that met all of his needs, and he enrolled in the fall of 2009.

Throughout his academic career at Rivier, Gill drew inspiration and guidance from Dr. Riabov, professor of computer science and director of Computer Science programs and department coordinator, who he says was his mentor throughout the course of his studies.

“He taught me more than just the writing of software, but the entire development lifecycle process, something I did not expect,” says Gill. “His classes were inspiring and unlike anything in my undergraduate studies, taught real-world software practices that I was able to apply directly to my work.”

Riabov recalls Gill as a straight A student who worked hard and demonstrated “great skills” in every aspect of his work and projects.

“I was impressed with Kevin's intellect, creativity, depth of theoretical analysis, research skills, and enthusiasm for sharing his findings with classmates, the instructor, and the community of scholars,” Riabov says of Gill. “His latest project on modeling Mars is a demonstration of his ability to go the extra mile and meet the challenges of modern sciences and engineering.”

While at Rivier, Gill completed a computer science internship in the form of a professional seminar course, where Riabov took on the role of an employer with project development lifecycle requirements and milestone delivery dates. Gill's project was a cross-platform software application that generated scientific digital elevation models using elevation data and satellite imagery provided by the United States Geological Survey (USGS)—the very project that spurred the creation of his recent computer-generated Mars images. He still develops this code today as an open-source project called jDem846.

After graduating from Rivier in May 2011, Gill took part in the Computer Science Advisory Committee and the Alumni Ambassador Program. In the spring of 2012, his review of the imagery methodology and research results of his capstone research project, titled “Casting Shadows: Shading Digital Elevation Models Using Ray Tracing,” was published in Rivier's academic journal, InSight.

On Jan. 9, 2013, Gill's work garnered local attention when *The Telegraph*, the local Nashua newspaper, published a front-page article about his Mars images. “It's kind of a surprise,” he said in the article about the success and popularity of his recent work. “You don't expect something like this.”

“My software and what I've produced with it, originally started as a Rivier project and with a Rivier education, has reached levels that I didn't even expect,” he adds. “It wasn't meant to be an

exhaustive study, but hopefully will trigger the imagination and, perhaps, increase support for the study and exploration of the Red Planet.”

Gill says his Rivier education prepared him well for the job market, and the broad range of course subjects put him in a position to be able to identify and provide solutions to workplace opportunities. He credits Rivier with offering a personalized education and the expertise of high-quality instructors.

And what’s more, the University’s mission of ‘transforming hearts and minds to serve the world’ is one that impacted his time at Rivier and continues to impact his life.

“Because of the professors and the mission, I was motivated to share and further my work,” he says. “I feel that I can use the technical expertise I learned at Rivier as a benefit to others, whether as ideas or developed products.”

In the future, he hopes to eventually use his passion for software development to begin a start-up software company producing scientific applications. The goal would be to provide a product that would put more scientific algorithms and computing platforms within reach of those making scientific discoveries.

“I have found my passion in software development,” he says. “This is something I seem to always have been doing. I was writing computer games in high school and never quite stopped programming. Now that I code professionally, I still enjoy it and can’t envision any other type of career.” ■