Student Success Sourcing the Storm

Powerful storms and rising seas may threaten coastal cities, but thanks to Professor Alan Blumberg and a clever team of Stevens students, residents could soon learn more about protecting their homes and preserving their quality of life.

In what they call a “citizen science project,” Blumberg and his students are designing a platform to collect social media posts from local residents during extreme weather events, including flooding and precipitation (rain and snow). The posts will be turned into valid data via statistical crowdsourcing, with clear graphical maps on a street-by-street basis displayed in real-time. Over time, researchers at the Davidson Laboratory would combine those maps with other advanced forecasting model maps to develop sharper estimates of conditions as they are occurring.

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The goal is to make residents more informed and their cities and environments more resilient against threatening weather events, with future plans to probe other life quality factors such as air temperature and traffic congestion. The project will focus first on Hoboken as a test case, including support from the city government, but Facebook is already interested in adapting the project globally.

FAMOUS FACULTY

The students are fortunate to be learning from a renowned expert in urban oceanography. Besides teaching, Dr. Blumberg is Director of the Davidson Laboratory and holder of a Chaired Professorship in Ocean Engineering supported philanthropically by the George Meade Bond, Class of 1880 fund. Blumberg frequently appears on the Weather Channel, Fox, ABC and other national news outlets. During the famous “Miracle on the Hudson,” he provided information on Hudson River currents and temperatures to first responders helping to rescue Captain Sullenberger and plane passengers on USAIR Flight 1549.

“Working with these students is very exciting for me,” Blumberg said, “Already they have taken my ideas and enhanced them in ways I never imagined. They are brilliant and focused. The opportunity to work with students like them is one of the reasons I came to Stevens in the first place. The research we are doing together may one day help communities better survive future storms and improve the quality of life for us all.”

MEETING OF THE MINDS

Six of the eleven students are pursuing business degrees, while the others are pursuing degrees in computer science. “By working on this project, I have learned about the science behind weather forecasting and how its accuracy can help prepare for major storms like Hurricane Sandy,” said finance major Allison McDougall ’17. “It has been great working with Dr. Blumberg, and I am really learning how to interact with students of other mindsets, like the computer science group. As a business student, it’s interesting to see how their minds solve problems.”

Computer science major Karan Shah ’17 agrees. “By working on this project, my team members and I get exposure to more than just the typical computer science problems. We get to work with Dr. Blumberg to accurately model flood data with a goal to create a resource that people around the world can use. Even if our application helped just one person, I would feel very accomplished.”