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U.Va. Graduate Students Secure Esteemed NSF Fellowships

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Justin Henriques, David Hondula, and Isabelle Stanton receive research funding.
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From left to right: Justin Henriques, Isabelle Stanton, & David Hondula.
Photo by Melissa Maki

Three top University of Virginia graduate students have earned prestigious National Science Foundation (NSF) fellowships to support their original

research plans over the next few years.

Justin Henriques, David Hondula, and Isabelle Stanton are among a select group of 913 students nationwide who were awarded financial support through the [NSF Graduate Research Fellowship Program](#)¹(GRFP). This funding is highly competitive and is geared toward students in the early stages of graduate degrees in science, technology, engineering, and mathematics fields. Fellows receive three years of funding to support their research endeavors, which includes a tuition payment as well as a \$30,000 per year stipend.

“This year’s fellows are addressing highly relevant social and environmental problems through their research,” says Roseanne Ford, associate vice president for research and graduate studies. “Their extraordinary scholarship brings U.Va. recognition, but more importantly, it may have significant, practical applications for

society.”

2008-09 NSF GRFP Fellows and their Research

Justin Henriques, Systems and Information Engineering, Advisor: Garrick Louis

Justin Henriques, master’s student in [systems and information engineering](#)², is working to create a decision support model to assist developing communities in determining appropriate and sustainable technologies to ensure safe drinking water and sanitation services. Henriques’ research will build on Capacity Factor Analysis, a systems analysis technique developed by his advisor, Associate Professor Garrick Louis. Since 1.1 billion people lack access to safe water, and over 2.4 billion lack access to safe sanitation services, this is a significant global challenge.

The NSF GRFP review panel commended Henriques on his technical background, demonstrated commitment to the application of his engineering training for the greater good, and his well presented research statement. In the words of one reviewer—“this application is the embodiment of all the core and guiding principles of the Graduate Research Fellowship Program. Extraordinary vision and commitment to service and the transformation of society.”

David Hondula, Environmental Sciences, Advisor: Robert Davis

David Hondula, master’s student in atmospheric sciences in the [Environmental Sciences Department](#)³, is investigating the impacts of weather and climate on the respiratory health of residents of Washington D.C. “I think one of the strengths of David’s proposal is that declining respiratory health is an emerging environmental problem,” says Professor Robert Davis, who serves as Hondula’s advisor.

Hondula will examine the interrelationships between the many environmental

causes of respiratory distress, including weather, pollution, and pollen. “This is an important project because conditions like asthma and bronchitis are related to a wide variety of both indoor and outdoor factors,” notes Davis. “Uncovering the interactions between these factors requires a talented researcher like Dave who not only has a strong atmospheric science background but also interdisciplinary interests that go beyond that training.”

Hondula says his ultimate goal is to create a predictive model that will alert the public to the onset of high-risk events up to 48 hours in advance.

Isabelle Stanton, Computer Science, Advisor: Nina Mishra

Doctoral candidate Isabelle Stanton's [computer science](#)⁴ research is working to address privacy challenges brought on by online social networking—including interactions through instant messaging, emails, and websites like Facebook. She is developing algorithms that allow representations, or social graphs, of who interacts with who to be released while still preserving user privacy.

"The problem that Isabelle plans to solve has tremendous practical value," says Nina Mishra, associate professor of computer science and Stanton's advisor. "Social networks are a burgeoning form of communication, and this digital record of friendship is an easy way to breach privacy. Social networks have already been turned over to government agencies—for example, the telephone calling graph. Isabelle's research will be directed towards methods of anonymizing these networks so that large scale statistical patterns can be inferred, yet individual private friendships can not." Stanton's findings may have tremendous practical value in a wide variety of fields, from sociology to marketing.

References

⁴ NSF Graduate Research Fellowship Program

(<https://www.nsfgradfellows.org/>)

[^] [systems and information engineering](#)
(<http://www.sys.virginia.edu/>)

[^] [Environmental Sciences Department](#)
(<http://www.evsc.virginia.edu/>)

[^] [computer science](#)
(<http://www.cs.virginia.edu/>)

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