THE VIRUS HUNTER

By Michael Lucibella, journalism '08

ANYONE WHO HAS INTERNET ACCESS HAS caught a computer virus at some point. What's not clearly understood is the structure of the channels a virus takes while making its way through a network. Enter **Erik Hochweller (CAP '06),** a second-semester graduate student in the computer science program. For his master's thesis, he plans to set up a program to track the spread of computer viruses through a simulated computer "arena." Currently, he is working with computer science professor Michael Gray on an independent study in preparation for his thesis work.

Hochweller had earlier found a paper written by an IBM researcher tracking the spread of viruses. However, in several areas Hochweller found that the paper "didn't have realistic assumptions." The problem in the paper was that each simulated computer had one of only two states, either infected or uninfected. The IBM simulation didn't take into account a computer that might have an antivirus program installed and already be immune. Hochweller's strategy is to improve on the methods in the IBM study by including this third state, coming up with a more realistic model to study the channels a virus might follow.

To pull this off, Hochweller is preparing to set up a simulated network of computers. Starting with 10 simulated computers, he hopes to expand the model to much larger numbers, time and software permitting. Ultimately these computer models can be used to combat a virus's proliferation. One idea is to try to preempt a virus by spreading a "cure" through the very same channels that the virus uses and neutralize it before an infection can set in. This is only a concept so far due to privacy concerns about disseminating files (in this case the cure) the same way the virus spreads.

Right now Hochweller is laying the necessary groundwork for his project. He has already contacted the author of the IBM study to see whether any more research has been done on the subject and he hopes to continue the collaboration.

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