

# Killer apps that could keep you healthy

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Pacific Northwest National Laboratory hosted a competition this summer where graduate students designed two mobile apps to fight the threats of food-related illnesses and influenza.

For those wanting to keep their distance from health threats like E. coli-contaminated lettuce or the flu, there are two upcoming apps for that.

The Department of Energy's Pacific Northwest National Laboratory

hosted a competition this summer where graduate students designed two mobile apps to fight the threats of food-related illnesses and the flu. The apps are called FoodFeed and FL•U (pronounced 'flu you'). The Defense Department's Defense Threat Reduction Agency provided funding to PNNL to develop web-based analytics and [mobile apps](#) as part of its Biosurveillance Ecosystem (BSVE) program.

"Much of the information we need to fight [health threats](#) already exists as public data, websites and observations from people on the streets," said Court Corley, data scientist and lead investigator at PNNL. "What we need is all that information in one place, so we can put it in the hands of people. Mobile apps do that."

## **FoodFeed**

Designed for an Android operating system, FoodFeed alerts users about threats that come from food—whether it's from a [grocery store](#) or restaurant.

The app has three tabs, one of which is a news feed of articles and alerts on food recalls, illness outbreaks and other breaking consumer-safety information. For example, someone shopping at the grocery store could check the news tab and notice the cilantro in their cart has been recalled due to a possible *Listeria monocytogenes* contamination.

Another tab shows health code violations at restaurants. Users can search for restaurant records—hopefully before ordering—read the details of specific violations, and compare restaurant ratings to the average number of violations in the area.

The last tab provides general information on the risks associated with food, such as the recommended temperature to cook beef and what harmful bacteria can be found in raw chicken.



An avatar of “Courtney” displays flu-like symptoms — sore throat, coughing and fatigue — on the iOS app FL•U, pronounced ‘flu you’. Developed by students at a Pacific Northwest National Laboratory competition, the app allows self-reporting users to contribute to localized breakout maps.

Users can look after their friends' stomachs too. They can share information from FoodFeed on social media or report suspected food poisoning to the local health department.

## **FL•U**

Designed for iOS, FL•U lets users share if they have influenza or flu-like symptoms. Their voluntarily submitted information can help create localized outbreak maps.

To use the app, users create a customized avatar that visually displays symptoms the users submit. For example, if a user reports a fever of 101 F, their avatar's face turns red. When a user has been diagnosed with the flu by a doctor, they can update their avatar to hold a balloon that looks like a germ.

A user can choose to make their avatar visible to others—including health departments—in the form of an interactive map. And for those afraid of losing friends every time they have the sniffles, users can share information anonymously.

Not only would the information benefit local health departments, but users can see how many people are sick in their area or search other areas too. Planning a road trip? The number of sick people could help you decide between Portland and Seattle, for instance.

## **Making the apps**

As a key player in the White House's National Strategy for Biosurveillance, PNNL proposed this first-of-its-kind competition at the laboratory as an answer to a national call for improved biosurveillance tools.

"Whether it's a natural disaster or a disease outbreak, a public health event can come out of nowhere," said Chrissie Noonan, a PNNL research analyst and mentor to the students. "We're asking how we can

stay ahead of the curve, and one answer is to develop mobile tools."

The 10-week competition brought seven graduate students with strong mobile-app development skills from schools across the nation to the laboratory. There, they received a crash-course on biosurveillance from industry experts. Along with help from Noonan and Corley, Michael J. Henry, a visual analytics researcher, guided the students as their lead mentor.

"These students came from different backgrounds with diverse experience," Henry said. "It was their creativity that brought a fresh perspective to solving biosurveillance problems."

Each student pitched app ideas, and then the teams chose to develop FoodFeed and FL•U based on input from their mentors.

The apps could rest in your hand soon. PNNL is working to license the apps and make them public in the next few months.

Provided by Pacific Northwest National Laboratory

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