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Physics professor directing grant toward developing lifelike guide to the Internet

Avatar intended to encourage people to seek help online

By KATIE NIELAND
Daily Nebraskan

Being a grant-winning professor can become a balancing act.

Christian Binek, an assistant professor of physics and astronomy at the University of Nebraska-Lincoln, devotes a substantial amount of his time to research in the field of spintronics.

At the same time, he's developing an inventive idea for the grant's required educational component — creating a simulated version of a physics expert, complete with facial features.

For this work, he's received a five-year, \$500,000 Faculty Early Career Development grant — an award given to newer faculty members — from the National Science Foundation.

Binek wants to create a way to make people more comfortable with asking questions on the Web.

Students or the public could pose questions online and would receive answers from an avatar — an image representing a Web-based user. In this case, the avatar would be knowledgeable in the realm of physics and could have a full range of expressions and a voice. Physics students or the general public could use the avatar through sites like the UNL Web site.

"I want to make this an interactive experience," Binek said, "where you can feel like you're talking to a person and they can answer in an area of expertise like a human."

Although the educational component of his research grant is important, the spintronics part of it is his main focus.

In conventional electronics, electric charges are manipulated by electric fields. In spintronics the spin of electrons is directed instead of the charge.

Binek said that within spintronics, he is studying the effect of bringing together two types of magnetic materials, creating the exchange bias effect, which is at work in most computers.



BECKY AIKEN / DN

If they can effectively control this effect, Binek said, they can realize some of the new spintronic devices that would combine data storage and processing in one mechanism.

Roger Kirby, physics and astronomy chairman, said Binek's work has many applications.

"It's good physics and has some potential applications down the road," Kirby said.

He said that in terms of the avatar program, Binek's work could help people's apprehension when asking physics questions.

"The program has the potential to engage students online," Kirby said.

Binek said he wants to take the program to the next level, adding voice and reactions to the avatar, as well as expanding its use to the whole physics department.

Neb. town makes move to require detectors

WAHOO — After a father and son died in their home from carbon monoxide poisoning, the city is requiring carbon monoxide detectors for all new homes and housing additions.

Wahoo is one of the first communities in the state to require the detectors, officials said.

Peterson encouraged the Wahoo City Council to adopt the new ordinance last month in response to the deaths of Ron Larsen, 55, and his 18-year-old son, Tim.

The two died in their Wahoo home in January from carbon monoxide poisoning. Investigators blamed a faulty furnace, and after an investigation, no criminal charges were filed. A repair company had worked on the Larsen's furnace days before the deaths.

The Larsens did not have a working carbon monoxide detector inside the house.

The new city rules, which went into effect in late March, apply to all construction in city limits and its one-mile zoning jurisdiction. Businesses or office buildings are exempt.

Builders must install the detectors on every level of the newly constructed home, and a detector must be directly outside of the bedrooms.

The ordinance requires wiring to be permanent with no disconnection switch, which reduces the possibility of malfunction, Peterson said.