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2 Stanford students win \$10,000 award for handheld diagnostic device

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Two Stanford University graduate students have won the inaugural IEEE Presidents' Change the World Competition for a handheld laboratory capable of diagnosing illness in remote corners of the globe.

Drew Hall, a fourth-year student in electrical engineering, and Richard Gaster, a medical and bioengineering student, will be presented with \$10,000 at an award ceremony today in Los Angeles. More than 200 students from every continent except Antarctica submitted technological solutions to societal problems, and the entries of the 15 finalists were evaluated by the immediate past, present and future presidents of the Institute of Electrical and Electronics Engineers, the world's largest technical professional society with more than 380,000 members worldwide.

"The winning project was spectacularly interesting," said Lew Terman, 2008 IEEE president. "It uses technology to address a real problem, which is simple diagnosis of disease."

The aim of the students' NanoLab is to detect proteins where laboratory equipment and technicians are not available, and to do so more effectively than the current gold standard: the Enzyme Linked Immunosorbent Assay.

Hall said in developing countries doctors often diagnose by simple inspection, which may not be adequate for diseases such as AIDS or swine flu.

"So our goal was to develop something that is very simple, easy to use, that can be taken and used anywhere," he said.

The Stanford duo, who both work in the University's Shan Wang materials science group, spent three months on the NanoLab project. But the timeline is misleading, they noted, given that they were conducting graduate-level research at the same time.

"We worked a lot of nights and weekends — and any free time we got, really," Hall said.

The friends will now look into intellectual property rights and a patent for their device, but per Stanford policy, the university owns the invention because it was conceived with use of the institution's resources. Net cash royalties, then, are divided one-third to the inventor, one-third to the inventor's department and one-third to the inventor's school within the university.

"As far as mentoring, training, educational skills, lab equipment — I'd be crazy to say Stanford didn't play a large role in this," Hall said of the project.

Gaster and Hall have yet to decide what they will do with the \$10,000 awarded by the IEEE, but said it will most likely be put toward further research and development.

"We're not going to aim for something shortsighted here," Hall said. "We're going to shoot for the stars."

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