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Surgical Robots Based on Open-Source Platform Will Accelerate Robotics Research

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Based on an open-source model, UCSC and the University of Washington are sending Raven II robots to several universities in order to accelerate research on surgical robots.

Researchers at [UC Santa Cruz \(http://www.ucsc.edu\)](http://www.ucsc.edu) (UCSC) and the [University of Washington \(http://www.washington.edu\)](http://www.washington.edu) (Seattle) have built seven surgical robots—dubbed Raven II—for their own use and for use by five other medical research laboratories, including [Harvard University \(http://www.harvard.edu\)](http://www.harvard.edu) (Cambridge MA), [Johns Hopkins University \(http://www.jhu.edu\)](http://www.jhu.edu) (Baltimore), [University of Nebraska \(http://www.unl.edu\)](http://www.unl.edu) (Lincoln), [UC Berkeley \(http://berkeley.edu\)](http://berkeley.edu), and [UCLA \(http://www.ucla.edu\)](http://www.ucla.edu). The unique thing about these systems is that they are based on an open-source model in order to accelerate the field of robotic research. It is advantageous for the separate laboratories to work on a common platform because it will make it easier for researchers to share software, replicate experiments, and further collaboration.

Most research on surgical robotics in the United States has focused on developing new software for various commercially available robotic systems, according to Jacob Rosen, associate professor of computer engineering in the Baskin School of Engineering at UCSC and principal investigator on the project. "Academic researchers have had limited access to these proprietary systems. We are changing that by providing high-quality hardware developed within academia. Each lab will start with an identical, fully operational system, but they can change the hardware and software and share new developments and algorithms, while retaining intellectual property rights for their own innovations," Rosen adds.

Raven II includes two robotic arms, a camera for viewing the operational field, and a surgeon-interface system for operating the robot remotely. The system is capable of supporting research on advanced robotic surgery techniques, including online telesurgery.

