

UC San Diego

UC San Diego News Center

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UC San Diego Hires Top Robotics Expert to Lead Contextual Robotics Institute



Henrik Christensen is the founding director of UC San Diego's Contextual Robotics Institute. Credit: Georgia Institute of Technology

Henrik Christensen, one of the most influential robotics researchers in the world, is joining the University of California San Diego. He will direct the UC San Diego Contextual Robotics Institute and serve as a professor in the Department of Computer Science and Engineering at the Jacobs School of Engineering. Christensen is leaving his post as executive director of the Institute for Robotics and Intelligent Machines at the Georgia Institute of Technology to come to UC San Diego.

“Henrik Christensen is a world leader in robotics with an exceptional track record in education, research and industry partnerships. He is a leader who will build bridges between engineering, computer science and the social sciences as we work together as a campus to develop the useful robotics systems that will improve human lives,” said UC San Diego Chancellor Pradeep K. Khosla.

As the faculty director of the Contextual Robotics Institute at UC San Diego, Christensen said he plans to help the more than 50 faculty members in the Institute boost research efforts; expand partnerships with industry; build educational programs at the undergraduate and graduate level; and create new robotics outreach programs for kids. “We are going to do all this better than anyone else in the world,” he said. In 2011, Christensen was awarded the Joseph F. Engelberger Robotics Award, widely considered the world’s most prestigious robotics honor.

UC San Diego officially launched the Contextual Robotics Institute in October 2015 at the second annual Contextual Robotics Forum. The institute is a partnership of the Jacobs School of Engineering and the Division of Social Sciences, with the UC San Diego Qualcomm Institute, which has committed 3,500 square feet of space in its headquarters building, Atkinson Hall, to house parts of the Institute.

“Hiring Henrik Christensen is an important step in our multi-year effort to make UC San Diego, Southern California and the international CaliBaja region a global robotics powerhouse,” said Albert P. Pisano, dean of the UC San Diego Jacobs School of Engineering.

The mission of UC San Diego’s interdisciplinary Contextual Robotics Institute is to develop safe, useful and human-friendly robotics systems that are deeply integrated with how humans live. Christensen said he plans to double research funding for the institute in the next five years.

“We have very aggressive growth targets for the program’s students, faculty and partnerships with industry,” said Christensen.

Over the past three decades, Christensen has established a stellar track record of leading robotics institutes and bringing them to the forefront of the robotics field. Ten years ago, he took over the Institute for Robotics and Intelligent Machines at Georgia Tech. The institute quadrupled its funding during that time and rose to one of the top three robotics programs in the nation. He had similar success building up the Center for Autonomous Systems at Sweden’s KTH Royal Institute of Technology as well as the EU Network of Excellence in Robotics.

The opportunities for expanding and strengthening the robotics ecosystem in San Diego are incredible. San Diego is half the cost of Silicon Valley, and the research institutions, the talent, the industry clusters, and the military and government players are all here, explained Christensen.

Christensen said he is looking forward to working with San Diego's robotics community. "We want to make an economic impact and make sure that we are solving problems that industry is interested in," he said.

"One of the next frontiers in engineering is connecting the Internet to the physical world," he said. "This will happen through robotics."

Research and biography

Christensen is a leader in the setting of national policy for the field of robotics and has testified before Congress on the subject. He is the head of a nationwide effort to draft a robotics roadmap for the future and explore the field's potential to transform U.S. society via new markets and industries; create new jobs; and address issues of national importance. He served as the founding chairman of the European Robotics Research Network, now a community of more than 230 research groups in academia and industry.

Christensen's own research covers computer vision, artificial intelligence and robotics, and his primary emphasis has been on a systems-oriented approach to machine perception, robotics and design of intelligent machines. He has worked with a number of industry partners, including Boeing, KUKA, iRobot, BMW and Apple.

"We are trying to solve real problems with real solutions," he said.

Christensen has published more than 300 works in the field of robotics, vision and artificial intelligence. He and his team seek solutions that are theoretically sound, with well-defined implementations that can be evaluated in realistic situations.

Christensen has worked on a wide range of projects, from helping Boeing increase its production rates for manufacturing to iRobot's defense-focused robots. He was part of a team that developed the world's first autonomous vacuum cleaner, called the Trilobite, in Sweden in the mid-1990s to early 2000s.

In a distinguished lecture in late May on the UC San Diego campus, Christensen explored his research on a model-based vision for robot applications. “As robotic systems are moving from well-controlled environments to unstructured environments, they are required to operate in highly dynamic and cluttered scenes,” noted Christensen, going on to highlight his work in addressing three outstanding challenges. “Those challenges include clutter in the background; handling both textured and textureless objects; and how to deal with discontinuities during the tracking of an object.”

In addition to the 300+ journal articles and conference papers, Christensen has published more than 30 book chapters and at least 15 books (as editor or co-editor). He also serves on six editorial boards of leading publications in robotics and pattern recognition, and is the editor in chief of Trends and Foundations in Robotics. In 2013 Christensen was elected a fellow of the American Association for the Advancement of Science (AAAS), and later a Fellow of the Institute of Electrical and Electronic Engineers (IEEE) in 2015.

Christensen was initially trained in mechanical engineering and worked subsequently with MAN/BW Diesel. He earned a master’s and Ph.D. in electrical engineering from Aalborg University in Denmark, in 1987 and 1990, respectively.

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