

Drone Valley: The University of California and the business of high-tech slaughter

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Over the past two months, the appointment of a number of new academics and scientists to the University of California, San Diego's (UCSD) Contextual Robotics Institute has been touted as an initiative that will make the city into a world renowned "Robot Valley." Although the institute boasts of possible future achievements in "assisted living, disaster response, medicine, transportation and environmental sensing," a closer look reveals that the overriding orientation of the initiative is bound up with the US drive to war.

An examination of the individuals, corporations, and institutions involved makes it clear that the development of this new hamlet of high-tech production is to focus on the research and production of not just any robots, but particularly those that are involved in war abroad and the policing of the population at home. The Institute was created in 2015 under the umbrella of the Jacobs School of Engineering at UCSD—a department with longstanding ties to US military and intelligence, as well as to local defense contractors.

That the changes in the Institute's leadership in recent months have been promoted with much fanfare by defense contractor Northrop Grumman sheds light on the orientation of the university department and the orientation of the city's economy towards the US war machine. In addition to Northrop Grumman, the Contextual Robotics Institute is sponsored by General Atomics, General Dynamics, SPAWAR (Space and Naval Warfare Systems Command), Air Force Office of Scientific Research, US Army Research Laboratory, Defense Advanced Research Projects Agency (DARPA), US Department of Defense, US Defense Threat Reduction Agency, Los Alamos National Laboratory, Office of Naval Research, and Lockheed Martin.

The newly appointed director of the program, Henrik I. Christensen, is currently, or previously was, a consultant for General Electric, Boeing, and DARPA. He assisted the Obama administration in the development of the US Robotics Roadmap, a white paper initially presented to the Congressional Robotics Caucus in 2009 and further developed by institutions, academics, and industries oriented towards organizing an "American Robotics Network."

The initial paper from 2009 outlined the importance of developing robotics in the areas of service, manufacturing, and health care as a "Key Economic Enabler" to make US manufacturing more competitive in the rapidly emerging market of the "robotech" industry. The paper explains that while the rest of the world has been developing investments in robotics, US research, development, and manufacturing has been almost non-existent outside of investment for defense purposes.

Significantly, an updated version of the report released in 2013 reorients the project back to the military and states, "In recognition of

the important role that space and defense robotics has both to R&D but also as early adopters, new chapters were added for those areas." In the section on defense, the white paper outlines national security challenges that the US will face in the next 25 years: "The rise of new powers, the growing influence of non-state actors, the spread of weapons of mass destruction and other irregular threats, and continuing socioeconomic unrest will continue to pose profound challenges to international order."

As the real economy stagnates and corporations continue to retreat from investing capital in production in favor of financial parasitism, it appears that the defense sector will continue to dominate the robotics field. A report in 2013 by the corporate lobby organization, the Alliance for American Manufacturing (AAM), authored by retired US Army brigadier general John Adams, titled "Remaking American Security," points to the ongoing importance of Pentagon money in propping up weak US manufacturing: "DoD demand provides an important cushion for industries exposed to global competition and volatile price developments. Defense demand softens the impact of global downturns in sectors like aerospace and shipbuilding."

The centrality of the defense sector in the US manufacturing economy is reflected in the militarization of American science and engineering. At UCSD, the ties between the university's leadership and the defense and intelligence agencies are remarkable. Pradeep Khosla, the chancellor of the university since 2012, also spent time at DARPA working on the Senior Advisory Group for Joint Unmanned Combat Air Systems—more commonly known as drones. This past January, he joined the executive board of Avigilon—"a trusted provider of business intelligence and security solutions." Khosla is paid well over \$400,000 annually by UCSD for his role as chancellor. It is unclear how much he earns from the many non-profits, government organizations, venture capital firms, and high-tech start-up companies in which he is also involved.

On August 29, Todd Hylton was appointed the executive director of the Contextual Robotics Institute. Hylton too worked as a program manager at DARPA where he assisted in developing a chip inspired by the function of the human biological nervous system, and in the creation of the "hummingbird drone" for the Nano Air Vehicle program.

The purpose of these appointments is to more firmly harness the university to the needs of US imperialism in terms of both military power overseas and the domestic surveillance and repression that necessarily accompanies it at home. The University of California system as a whole is headed by Janet Napolitano, former chief of the Department of Homeland security. As the WSWWS noted earlier this year, she sanctioned a secret spyware system over the entire network

of UC campuses in order to monitor and collect all information sent over the university networks.

The Contextual Robotics Institute is part of the Irwin and Joan Jacobs School of Engineering, named after the founder of the telecommunications and semiconductor company, Qualcomm, who is a major donor to the campus. Qualcomm is one of the companies listed as belonging to the Jacobs School's Corporate Affiliates Program. Among the school's "corporate affiliates" are numerous military-industrial and intelligence contractors and organizations, including Booz Allen Hamilton, Cubic, General Atomics (manufacturer of the Predator drone), L-3 Communications, Leidos (a spin-out from SAIC, taking over contracts with the National Security Agency [NSA] and Ó National Geospatial-Intelligence Agency [NGA]), Lockheed Martin, NAVAIR (Naval Air Systems Command), Northrop Grumman (manufacturer of the MQ-5B Hunter drone, used widely by the US Army), Raytheon, Rincon Research Corporation, Scientific Research Corporation (SRC), SPAWAR, UTC Aerospace Systems, and Viasat.

The Jacobs School's web site touts the fact that these corporations have access to its students as a pool of future employees, and to "brainstorming meetings" with faculty that will "yield results for your company" and "that encourage engineers to research contracts with defined deliverables" (in other words pushing faculty to carry out work of benefit to these companies). A seat on the Corporate Affiliates Program Executive Board provides "a unique opportunity to share in leadership of the Jacobs School ... Working together, we can work better for you." Areas in which these companies can ensure that the Jacobs School "works for" them are "Curriculum Development, Future Research Focus, Industry-University Initiatives, Networking." In other words, by paying annual dues ranging from \$3,000 to \$25,000 these companies are able to buy influence over education and research at UCSD and to shape the university's institutional goals. There could hardly be a clearer statement of the subordination of academia to corporate and military interests.

A striking example of UCSD's position as part of a military-industrial-academic complex was the joint research project carried out in 2006 by the Jacobs School's Department of Structural Engineering with Northrop Grumman's Integrated Systems sector, aimed at increasing the payload of Northrop's Hunter MQ-5B drone.

As Northrop Grumman's lead engineer on the project put it, "The increased takeoff weight gives the U.S. Army the flexibility to add additional communications, intelligence and weapon payloads to the Hunter, expanding the capabilities of the warfighter. This flexibility will expand the aircraft's multi-mission role on the battlefield." This means that the university was directly engaged in weapons development. The US Army's first lethal use of an armed drone was in Iraq in September 2007, when a Hunter MQ-5B dropped a Northrop Grumman laser-guided Viper Strike munition on what, according to the Army, were two men planting a roadside bomb. Since then, drone strikes have claimed the lives of thousands of civilian men, women and children in Iraq, Afghanistan, Pakistan, Yemen, Somalia and elsewhere.

The recent developments at UCSD also reflect a coordinated effort between the defense and intelligence agencies, universities and military-industrial manufacturers to reorient defense manufacturing back to US shores. There is growing concern within the establishment that the outsourcing of manufacturing supply chains for the defense industry could be detrimental to national security. The 2013 AAM report implores the nation's leaders to make "America less dependent

on foreign nations for the vital products that enable America's soldiers, sailors, airmen, and Marines to be the most powerful and effective fighting force in the world." It further asserts, "The health of our manufacturing sector is inextricably intertwined with our national security, and it is vital that we strengthen the sector." This process is rapidly unfolding in San Diego's high-tech research and development and manufacturing sectors.

As of 2015, 22 percent of all jobs in the County of San Diego were related to the military. Defense-related activities generated around \$45 billion that year, or around 21.5 percent of the gross regional product. The Navy's SPAWAR program employs 4,900 employees directly (out of a national total of around 10,000) and is responsible for another 19,000 contracted jobs throughout the county.

San Diego County has the nation's largest concentration of armed forces personnel. The city hosts 60 percent of the US Navy's ship fleet. There are 49 Navy ships home-ported in SD as of 2015, a figure that is expected to climb to 84 ships by 2023. Between the Navy and Marine Corps, more than 100,000 active duty military personnel reside in the city.

The San Diego business elite has historically looked to the military to bankroll the region's economy. Today, the service of UCSD to the region's drone manufacturers such as General Atomics, Northrop Grumman and other companies, is central to that strategy. Introducing a conference on Contextual Robotics in 2014, the Jacobs School Dean Alfred Pisano (another former DARPA program manager) gushed, "The military and defense presence in San Diego is profound, with particular excellence in unmanned vehicles. The advanced manufacturing sectors in San Diego and Tijuana are growing and diversifying, and the region's robotics entrepreneurs are energized. San Diego is also home to top research and education institutions. Given this broad and deep engagement with robotics technologies, the potential impact of a world-class robotics cluster in San Diego is tremendous."

From the development of poison gas in World War I, to the atomic bomb and hydrogen bomb in World War II and the Cold War, to today's drones and military ground-robots, the channeling of society's scientific expertise and engineering capacities into technologies of destruction is a key feature of the epoch of imperialism. Instead of tackling critical global problems such as climate change and improving the material conditions of the broad mass of humanity, imperialism mobilizes science and technology in the service of mass murder.

This is why taking control of society's productive forces by the working class, and the planned socialist organization of production for the benefit of humankind, is a necessity for the very survival of the human race.



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