Career Profile

Catherine Harris

Research Fellow, Marine Autonomous Systems Development

"I research and implement innovative software and control strategies for our state-of-the-art robotic submarines, or Autonomous Underwater Vehicles (AUVs). Science and industry are keen to push the boundaries of what is currently achievable with our robotic vehicles, collecting higher-resolution data over long periods of time in some of the most extreme environments on the planet, including under-ice in the Arctic and Antarctic. To help achieve this, I work on a wide-range of engineering and research projects, developing new robots and ways of operating our existing fleet, such as designing co-operative strategies to allow multiple robots to work together."

Qualifications
I hold a PhD in Robotics and a BSc Artificial Intelligence and Computer Science. My A-levels are Physics, Maths, and Computing with an AS-level in Electronics.

Career Pathway
During university, I completed two placements at the NOC and designed the software system for a student AUV.

Number of days at sea
23 (plus multiple on-shore deployments of Autosub Long Range and ecoSUBs)

Favourite thing about your work
The ocean environment is very tough for robots. We have to ensure they can contend with waves, currents and pressure, as well as huge uncertainty about what the seafloor is like and what they might encounter. Once an AUV dives below the surface, it is entirely on its own as we have little to no contact with it during the mission, so as engineers we have a nervous wait! However, it's incredibly rewarding to see the robots we have developed successfully returning to the ship after performing missions and collecting data thousands of metres below the surface.

Best technology you've developed
Unlike the majority of our robots, the new ecoSUB AUVs (developed at the NOC in collaboration with Planet Ocean) are miniature and easily portable, opening up a world of new opportunities for large-scale multi-vehicle deployments, as well as testing innovative artificial intelligence software systems, which can then be scaled up to our bigger fleet.

Support for equality and diversity
There are many fantastic women making brilliant contributions to STEMM subjects. If you're considering a STEMM career, believe in yourself and don't let anyone put you off. It isn't always easy to be in the minority, but there are loads of people and companies out there who will support and encourage you. Equality and diversity benefit everyone.