Abstract: The ocean has long been a driver for technological innovation, famously for precision time keeping and sonar technologies. More recently, the challenges of at-sea operations have driven advances in autonomous robotic systems. Unlike many terrestrial and aerospace robotic technologies, ocean systems are generally not able to maintain frequent communication contact with human users. As such, ocean robots execute many of their mission functions through autonomous behaviors triggered by sensors that detect the environment. This includes the sensing ocean weather conditions, currents, and bathymetry. Commercial applications involve the assessment of fisheries, marine traffic and off-shore energy production. Defense applications include tracking of marine targets, and sensing in regions not accessible to traditional data collection methods. An overview of current technologies and examples of their use will be presented.
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