ABSTRACT: Underwater robotics is undergoing a transformation. Recent advances in AI and machine learning are enabling a new generation of underwater robots to make intelligent decisions (where to sample? how to navigate?) by reasoning about their environment (what is the shipping and water forecast?). At USC, we are engaged in a long-term effort to develop persistent, autonomous underwater robotic systems. In this talk, I will give an overview of some of our recent results focusing on two problems in adaptive sampling: underwater change detection and biological sampling. Time permitting; I will also present our recent work on hazard avoidance, allowing robots to operate in regions where there is substantial ship traffic.

BIO: Gaurav S. Sukhatme is Dean’s Professor of Computer Science and Electrical Engineering at the University of Southern California (USC). He currently serves as the Chairman of the Computer Science department. His research is in networked robots with applications to aquatic robots and on-body networks. Sukhatme has published extensively in these areas and served as PI on numerous federal grants. He is Fellow of the IEEE and a recipient of the NSF CAREER award and the Okawa foundation research award. He is one of the founders of the RSS conference, serves on the RSS Foundation Board, and has served as program chair of three major robotics conferences (ICRA, IROS and RSS). He is the Editor-in-Chief of the Springer journal Autonomous Robots.