Packing and covering are fundamental combinatorial optimization problems, whose applications in sensor networks and robotics arise in geometric situations. They are usually NP-hard already in simple two-dimensional settings, and even harder when we take into account uncertain data, time constraints, and routing/connectivity considerations. We discuss this from the perspective of approximation algorithms and we describe some techniques that have led to new or improved bounds on running times.

Joseph Mitchell is Distinguished Professor of Applied Mathematics and Statistics and Research Professor of Computer Science at Stony Brook University. He has received various research awards (ACM Fellow, 2010 Gödel Prize, NSF Presidential Young Investigator, Fulbright Scholar, President’s Award for Excellence in Scholarship and Creative Activities) and numerous teaching awards. He is an internationally recognized leader in the area of algorithms, particularly in computational geometry.