

Many-Robot Systems: Crossing the Reality Gap

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Abstract

Significant advances in software development environments and cost reductions of vehicle and sensor platforms have resulted in tremendous growth of R&D for many-robot systems and distributed sensor networks worldwide. These efforts have yielded a plethora of theoretical results and online videos of many-robot systems achieving remarkable feats, but few of these systems are finding their way into the real world beyond prototype demonstrations. This full-day workshop will bring together experts in many-robot systems (including multi-robot teams, swarms, mobile sensor and communication networks, other networked mobile robots) to investigate the gap between theory (including research prototyping and demonstrations) and real world applications of many-robot systems. We will seek to identify killer apps along with key technical issues hampering the deployment of many robot systems, and discuss solutions towards moving these systems out of the laboratories and into real-world application environments. We refer to this process as “Crossing the Reality Gap”. We solicit submissions of extended abstracts from researchers working on crossing the reality gap for many-robot systems. The workshop will feature a combination of invited talks, oral and poster presentations, and a panel discussion on the topic “What government organizations need from researchers to transition many-robot systems to operational use.”