

OKGems: GENI-Federated Multimodal Cyber-Physical System

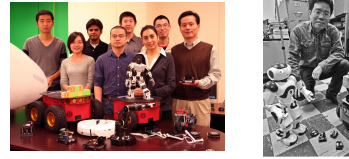
Scalable Software Systems Laboratory
Computer Science Department
Oklahoma State University



GEC 6, Salt Lake City, Utah, 2009



The Team



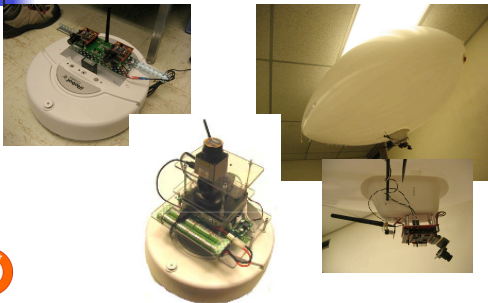
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Some Robots



More Robots



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Precision Farming



With N. Wang, OSU


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Plan

- Year One
 - Integrate a small sensor network using KanseiGeni and ORCA (local)
 - Integrate a small field-deployed sensor network (local)




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Plan (Cont'd)

- Year Two
 - Integrate two sensor networks: one in lab and one in the field (remote programmable)
 - Integrate various robots
 - Case Study 1: Robotic Arms picking up patterns based on pattern recognition algorithms (camera and RFID)
 - Case Study 2: Mobile Sensor Network Platform on iRobot Create and Pioneer3




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Plan (Cont'd)

- Year Three
 - Refactor the abstraction models of robots and sensor networks
 - Federate all devices into GENI (including a small cluster)



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