UNIVERSITY OF MINNESOTA

Minnesota Robotics Institute

ROB 8970 **ROBOTICS COLLOQUIUM** **FALL 2025**

Class Report – Lecture 1 (09/05/2025)

Speaker : Prof Nikolaos Papanikolopoulos

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Prof. Nikolaos presented an insightful overview of the "Robotics + X" model, emphasizing robotics as an interdisciplinary field at the intersection of AI, computer vision, and many more fields. He discussed recent advancements in logistics automation, surgical robotics, autonomous systems, and agriculture monitoring, explaining each with real world examples and research at UMN. The talk highlighted innovative methodologies such as reinforcement learning, motion capture for skill transfer, and 3D reconstruction in agriculture, as well as persistent parking detection systems. Nikos also showcased impressive work by recent and former students, including projects on solar UAVs and robotics in industry. He also addressed challenges like data privacy, the talent gap, and the social impact of automation, encouraging students to pursue experimentation, value interdisciplinary collaboration, and approach robotics with ethical awareness and adaptability.

Questions

- From my past experience, it's very hard to take a project from a lab prototype to real-world, uncontrolled environments. What is the current real-world progress of the student projects shown in class? Did the teams face any particular challenges, and if so, how did they overcome them?
- Some student projects in class, like agricultural robots and parking systems, looked impressive. What kinds of interdisciplinary skills are most useful for these projects, and how can students build those skills?

Comments

- The talk helped me see how what we learn in class connects to real projects and current trends in robotics.
- I liked that the professor talked openly about issues like data privacy and jobs, not just the technical side.
- Seeing student projects from UMN made it clear that what we do in research can actually help people and solve real problems.
- This lecture gave a good mix of technical ideas and big-picture thinking about what robotics means for society.

What I Liked

- I enjoyed hearing about projects led by students and alumni, it made the lecture very interesting and easy to connect.
- Being from different region, for me, professor's accent was bit hard to grasp. This kept me attentive for the whole lecture.

Areas for Improvement

- Could have included some more current projects by other students or professors so that we could have got an idea of in what area current research is going on

Overall Assessment

The lecture was very inspiring and easy to follow. It showed how research in robotics can actually make a difference in the real world and highlighted the chances and challenges the field brings. I liked that it made me think about how technology affects people and society, not just about the technical details. The talk also gave useful ideas about where robotics is headed and how different subjects come together to solve real problems. Overall, it made me excited about the opportunities in robotics and more aware of the responsibilities that come with working in this field.