Advising Philosophy Statement
Nick Roy, Robust Robotics Group

I run the Robust Robotics Group, and our mission is to develop the software that enables uncrewed vehicles to operate with a very high degree of autonomy in the air, on the ground and in water. Robots should not have human supervisors and should be able to operate by themselves over long distances and long time periods carrying out complex missions. Robots should be able to work alongside human partners as easily as people work with each other.

The prime directive for every graduate student and postdoc in my group is to focus on the most interesting and most impactful research questions. What do we want the robot to do that it cannot do right now, and why can't it? And when addressing a research question in autonomy, it is not enough to demonstrate how to get a vehicle to exhibit a new capability, but we have to explain the technical gap that existed prior to the research -- what didn't we know before? What is the underlying principle that other people can use?

My job as an advisor is to help each student and postdoc identify the research question, frame the technical question, and set them on the path to answering that technical question. The role of each student and postdoc is to follow that path, execute on the technical development, and be able to communicate their insight to the community.

I expect everyone to publish on average a novel conference paper each year, although this is not a requirement and research does require patience. I place a premium on the writing process, and I engage substantially with each student and postdoc in the writing and revising process to produce the best papers we can. I also take seriously the software development process as part of training, and expect everyone's software to live on after they have completed their degrees.

Pragmatically, I have a group of about 10-15 students and postdocs. I meet with everyone 1:1 once per week (travel permitting). I also have weekly group meetings, which I consider to be the most important meeting of the week, where people can engage with each other's research and learn from each other.

I consider collaboration to be crucial. Research in autonomous robots is a team sport. All of the best things that have happened in my group came from people working together, and it is not unusual for me to have people working so closely together they share the keyboard. People are encouraged to collaborate not only within the group, but also with people in other research groups.

I consider equity and inclusion also to be crucial. I view students and postdocs as partners in research. and I try hard never to ask someone to do a task I wouldn't be willing to do myself. I expect everyone to share all responsibilities. I expect senior people to mentor junior people, and I expect junior people to contribute to the community of the group, asking questions and participating in research discussions from day one. I actively welcome researchers of all identities into the group, and am very supportive of creating a space for the lab members to raise and discuss relevant DEI topics in robotics, including a regular time in our weekly group meetings, and a review every semester of our DEI activities as a group.

I consider work-life balance an important part of academic life although balance is hard for any of us to achieve, and I am no better at this than anyone else. Nevertheless, I encourage my group to take vacations, and I take a week twice per year to disengage, turn off email and spend time with my family.

Finally, I will work with students and postdocs to prepare them for the kind of job for which they have expressed interest. I will work with members of my group on academic research statements and job talks, should they choose that path. I will work with members of my group on preparing industrial applications and job talks, should they choose that path. And of course, these two choices are not mutually exclusive.