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## Towards fully autonomous robotics: a physicist's view

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In order to interact safely with the physical world, an autonomous system needs to be able to sense, perceive, plan and act. Research and development of algorithms that enable this kind of intelligent decision-making in robots operating in unstructured, dynamic environments is a task that lies at the intersection of mathematics, physics, computer science and mechanical engineering.

As a postdoctoral researcher and project lead in the field robotics team of the group "Optimization and Optimal Control" at the University of Bremen, my work involves close collaboration with industry partners to develop algorithms for autonomous robots and apply them to real prototypes. In this talk, I would like to provide insights into the challenges we face on our way to creating fully autonomous systems, the role that a sound understanding of physics and mathematics plays in being able to find solutions to them, and finally into my career path from theoretical physics to robotics.

After completing my masters in physics at the Indian Institute of Technology, Madras, I came to DESY Hamburg for my PhD in particle physics phenomenology, following which I continued in particle physics as a postdoc at the Karlsruhe Institute of Technology. Wanting to transition to the industry but not yet willing to fully leave research, I now work at the Center for Industrial Mathematics at University of Bremen, where I have been a postdoctoral researcher since 2020.

## Category

Other

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