



Prosjektoppgave

Studentens navn: Atussa Koushan
Fag: Teknisk kybernetikk
Tittel (norsk): Simulaor for hindringsbasert fremdrift hos slangeroboter
Tittel (English): Simulator for obstacle aided locomotion in snake robots
Description:

A number of different principles for snake robot locomotion have been proposed and tested, many of which are based on heuristic rules and stiff position controlled joints. A more physics-based and compliant method is being developed which is based on the formalism of *hybrid position/force control*. In this assignment you will study this emerging technique and simulate an idealized two-dimensional snake robot propelled by contact forces based on hybrid position/force control in an idealized environment comprising frictionless movement and extentionless environmental assets ("obstacles").

1. Study the theoretical backdrop of the assignment, and provide a brief overview of a) hybrid position-/force control (HPFC) in general, and b) HPFC applied to snake robots in particular. Special emphasis should be put on possibilities and limitations associated with HPFC in snake robot applications.
2. Establish a suitable model for the idealized robot and the robot's environment. Describe and justify any assumptions and simplifications made.
3. Develop a simulation platform for OAL based on HPFC concepts. To the extent possible, demonstrate relevant simulation scenarios.

Veileder(e): Øyvind Stavdahl, Institutt for teknisk kybernetikk

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Faglærer