

Doctoral thesis review letter

This is to certify that my doctoral student, Mr. Azamat Yeshmuhametov, has successfully fulfilled all the requirements needed for the degree conferment. His thesis title “Design and Development of Novel Wire-Driven Continuum robot Arm with Passive Sliding Disc Mechanism: Kinematic Analysis and Experiments”.

Mr. Azamat’s conducted research is pretty novel in continuum robotics and proposed idea is original. During the research Azamat faced with lots of challenges such as wire-tension slack, low payload capacity and low robot accuracy. As a technical solution, he proposed a new passive pretension mechanism to solve the problem with wire slack and improve robot accuracy. Moreover, Azamat proposed a hybrid pretension mechanism which improved robot motion accuracy and extended payload capacity. Azamat realized the robot mechanisms from the theory up to laboratory prototype. In all stages of his research he was an initiator.

An originality of the research is a passive sliding discs which distributes a bending stress along the robot backbone. Such passive sliding mechanism improved robot bending features and decreased a friction between the wire and robot components.

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