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MetaLab Research Group
https://slesarenko-lab.com/

Cluster of Excellence *liv***Mat**S
FIT – Freiburg Center for Interactive Materials and Bioinspired Technologies,
IMTEK, University of Freiburg

Inflatable scales for snake robot locomotion (HiWi, BSc, MSc)

Snakes can use at least five different modes of terrestrial locomotion, and the specific type of locomotion picked by a snake depends on the surface it is crawling on. Scales drastically improve friction between the snake body and the surface, enabling efficient and fast locomotion. Not surprisingly, the idea of the friction coefficient modification gains a lot of attention in robotics and soft robotics in particular. This project aims to develop soft tubular robots capable of changing the angles of the scales using pneumatic actuation. The scales will be arranged in a spiral manner enabling simultaneous actuation using multiple pneumatic chambers. The whole body of the robot will be 3D printed using a multimaterial 3D printer developed in the Cluster of Excellence livMatS.

The skills that you can acquire during this project:

1. 3D printing (FDM, Polyjet)
2. CAD modeling
3. Soft robotics

Please feel free to contact us if you have any questions.

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