NTNU AMOS

Centre for Autonomous Marine Operations and Systems

A New Class of Marine Robots: From Nature – through University – into Indus

Professor Kristin Y. Pettersen, NTNU

VISTA Day February 5 - 6, 2024

BIO-INSPIRATION

() SINTEF

ANNA KONDA

- Length: 3 m
- Weight: 75 kg
- Num joints: 20
- The first water-hydraulic snake robot in the world.

Slashdot: <u>Anna Konda, the Robotic Firefighter,</u> Engadget: <u>Anna Konda: the firefighting snakebot,</u> Technovelgy: <u>Robotic Fire Hose Anna Konda,</u> Innovations report: <u>Snake robot to the rescue.</u> Dagbladet 15.02.2005: <u>Verdens mest avanserte</u> <u>brannslange.</u>

Anna Konda A water hydraulic snake robot



AIKO

Snake robot with electric motors

- DC motor actuation
- Length: 1.5 m
- Weight: 7 kg
- 20 DOF

AIKO Obstacle-aided locomotion



KULKO

A snake robot with tactile sensors

- A smooth gliding surface
- Contact force sensors



NTINU – Thoudheim Norwegian University of Science and Technology

WHEEKO

A snake robot with passive wheels

Developed to study snake robot locomotion across flat surfaces













From Nature to University – Research results

Annual Reviews in Control 44 (2017) 19-44

The Underwater Swimming Manipulator—A

E.S.

FEE IOLIRNAL OF OCEANIC ENGINEERING VOL. 43 NO. 2 APR

Theory and Experiments

and Jan Tommy Gravdahl, Senior Member, IEEE

ance of the

can navigate in difficult envir

very interesting [1]. To realize

underwater applications, a nu

challenges must first be solve

concerns the ability to follow

fluence of ocean current effect

Based on the dynamic mode

for steering an underwater sna

magnitude. Unlike the biologi

in this paper is inspired by

that the integral LOS guidan

directional control of marine

urface vessels in the presence

resented in [3], the inte

Advances in Industrial Control

Pål Liliebäck



IEEE TRANSACTIONS ON ROBOTICS, VOL. 24, NO. 1, FEBRUARY 20

IEEE TRANSACTIONS ON ROBOTICS. VOL. 24. NO. 2. APRIL 2008

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THE EELUME CONCEPT





Eelume SUBSEA INTERVENTION

FROM BIOLOGY

THROUGH UNIVERSITY RESEARCH

TOWARDS INDUSTRY:

EELUME

EELUME WAS ESTABLISHED IN 2015







EELUME WAS ESTABLISHED IN 2015

Business development Focus: Customer needs



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Prista Jurge



