

Recovery of Fixed-wing UAVs on Ships Using Arrest Mechanism Suspended Between Two Multi-rotors

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Outline

- Motivation
- Existing systems
- Netcatch
- Operation scenario
- Simulation
- Linecatch
- Practical challenges
- Future work

Motivation

- Fixed wing UAV ship operations
 - Long range
 - Heavy payload
 - Challenging to land the UAV

• Landing in net



Source: http://rep13.lsts.pt/en/blog/sanity-tests-and-wavy-first-trial

- Landing in net
- VTOL



Source: http://www.top-enggroup.com/images/pigeon-V_01.jpg



- Landing in net
- VTOL
- ScanEagle



Source: https://www.youtube.com/watch?v=NY1Y9LBATHo

- Landing in net
- VTOL
- ScanEagle
- Darpa Sidearm



Source: https://www.darpa.mil/news-events/2017-02-06

- Landing in net
- VTOL
- ScanEagle
- Darpa Sidearm
- ZipLine



Source: https://www.youtube.com/watch?v=3AZF1TTDdEM

Netcatch



Netcatch



By Kristian Klausen, Thor I. Fossen and Tor Arne Johansen

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Operation scenario



Operation scenario



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Operation scenario



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Simulation





Simulation



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Figures by Aksel Haukanes



Practical challenges

- Tuning of formation controllers
- Time lag of RTKGPS
- Telemetry link

Future work

- Automatic takeoff and landing of multirotors
- Development and test
- Up-scale to be able to catch X8



