

TEAM MEETING 2017

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# TECHNICAL STANDARDISATION ON SMART ICT WITH DIGITAL TRUST – IOT

## MAIN POINTS

- ▶ Academic Background
- ▶ Relevant Work Experience
- ▶ PhD Motivation
- ▶ Current Status & Research Interests

## ACADEMIC BACKGROUND

- ▶ B.Sc. in Mechatronics Engineering - German University in Cairo, Egypt
- ▶ Pre-Masters in Autonomous Systems, Advanced Mechatronics and Robotics
- ▶ M.Sc. in Space Science and Technology - Luleå University of Technology, Sweden
- ▶ M.Sc. in Space Techniques and Instrumentation - Université Paul Sabatier (Toulouse III), France

## RELEVANT WORK EXPERIENCE

- ▶ Master Thesis:  
Collision Avoidance and Simple Path Planning for Autonomous Robotic Exploration.  
*DLR, Weßling*
- ▶ Institute of Communication and Navigation
- ▶ Implemented as a novel intermediate layer to separate collision avoidance and drift suppression from mapping tasks
- ▶ Act as a final and worst-case obstacle avoidance layer
- ▶ Quadrotor Unmanned Aerial Vehicles
- ▶ Other:
  - ▶ Teaching Assistant *GUC, Cairo*
  - ▶ Presidential Leadership Program & Egypt 2020 *Cairo, Egypt*
  - ▶ Tech Start-ups

# PhD MOTIVATION

- ▶ Collaboration between ILNAS and SnT - Smart ICT & Standardisation  
Goal: Creating an innovative environment on digital trust for smart ICT and related standardisations.

- ▶ IoT: Standardisation in the field of UAS is still recent with no final standards yet released.

The objective is to investigate the use of UAVs in the context of homogeneous and heterogeneous fleets. Ensuring the proper functioning of the fleet raises new problems of optimisation at the level of the communications based on the future dedicated protocols. <sup>1</sup>

<sup>1</sup>ILNAS - SnT Project Description

## CURRENT STATUS & RESEARCH INTERESTS

- ▶ Start date: 2<sup>nd</sup> October 2017
- ▶ Survey/Research directions paper on UAS Traffic Management Challenges
- ▶ Joined ISO/IEC/JTC 1/SC 41 - Internet of Things
- ▶ Privacy and Data Protection - ILNAS White Paper
- ▶ Research interests include: collision avoidance, localisation and tracking, path planning optimisation in multi-agent systems (UAV swarms) taking into account security and privacy concerns.

All with the aim of contributing to a standardised unifying science for smarter IoT systems to ensure the development and deployment of a reliable, verifiable, UTM for autonomous swarms to operate collaboratively in highly dynamic environments.

# THANK YOU

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