3D image matching for aircraft inspections

Job Description

Mainblades Inspections is on a mission to change the way inspections are performed for large commercial aircraft. Our company develops data-driven technology, focused on automation of the complete inspection process: from autonomous drone flight, to damage detection and assessment of visual data, all the way to automated reporting. Our automated drone inspections for aircraft allows for a more rapid and effective inspection on any location, enabling our customers to *keep their aircraft off the ground*.

Scope and objectives

The two key aspects of the automated inspection are:

1. The ability to detect damage from the images the drone is capturing of an aircraft, making use of computer vision techniques and machine learning algorithms.
2. Autonomously navigating around the asset that is inspected making use of various sensors.

Eventually, when the inspection is completes, the operator wants a report of the inspection results, including the location, size and type of the found damages. In this practically oriented assignment, you will bring the two aspects together: Combine high-res 2D RGB image data and the predicted damages with the low-res 3D Lidar data to create an assessment of the aircraft in a 3-dimensional representation. Given that pixel locations and pixel sizes of the damages are known, the goal is to match those to a point in 3-dimensional space, and subsequently indicate the size and location of the damages on the aircraft.

Requirements

What you bring to the table

For this 2-3-month internship, we are looking for a talented and enthusiastic MSc student (or BSc student with suitable experience), with programming experience in Python and ideally C++. Formal or informal experience in computer vision is not required but a plus. A lack of experience in the beginning can be compensated by a dedication for mastering new topics and a willingness to learn. Furthermore, we are looking for people who like to be seriously challenged and easily adapt to change. You contribute with innovative ideas to the company and have a shared responsibility to make our vision a reality.

What we bring to the table

A comfortable and fun working environment:

- Collaborating with a young, dynamic and multidisciplinary team in an innovative start-up.
- Testing of your research on an available drone inspection platform in a real-world application.
- Datasets and computational resources to conduct your research.
- Unique chance to be part of a high-growth, successful start-up.
- Possibility of extending the internship into a MSc-thesis assignment.

If you think you got what it takes, and you are up for the challenge, take the first step and apply now! If we're interested, we'll reach out and take you through our recruitment process.

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