

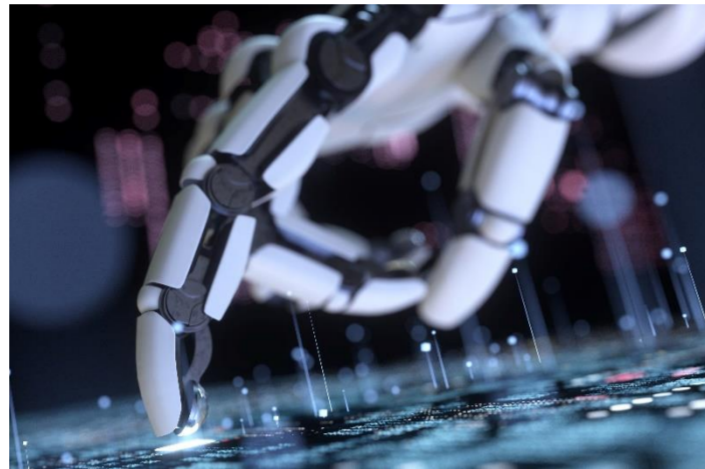
Accelerating Learned Descriptor Generation for Visual Localization

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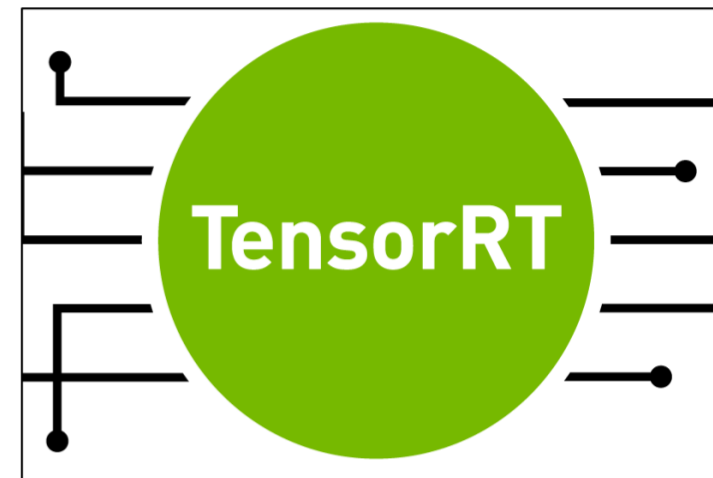
High Speed



AI



Embedded Devices



Performance

Project Objectives:

This project aims to investigate the use of Nvidia's TensorRT with FP16 precision to determine whether it can accelerate learnt feature extractor models, specifically SuperPoint, to achieve a high-speed alternative to traditional feature extraction methods in vSLAM systems particularly to run it on embedded devices.

Feature extraction algorithms:

- Baseline ORB
- SuperPoint using LibTorch
- SuperPoint using TensorRT with FP16

Type of Sequences:

- Baseline
- Illumination changes
- Dynamic elements
- Fast camera movement

Evaluation metrics:

- Memory usage
- Computational cost
- Algorithms accuracy
- Correct tracking percentage

Nvidia Jetson Xavier NX

