Proof of Concept for:
„Fast and Robust Visual Odometry using Particle Filter“

Roadmap for Final Project

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Proof of Concept for :
„Fast and Robust Visual Odometry using Particle Filter“

Motivation

- Paper: „Fast Visual Odometry and Mapping from RGB-D Data“

- ICP needs good starting points
  ⟹ Not suitable for strong Movement changes

- Particle Filter is more Robust
  ⟹ Due to representation of many Particles

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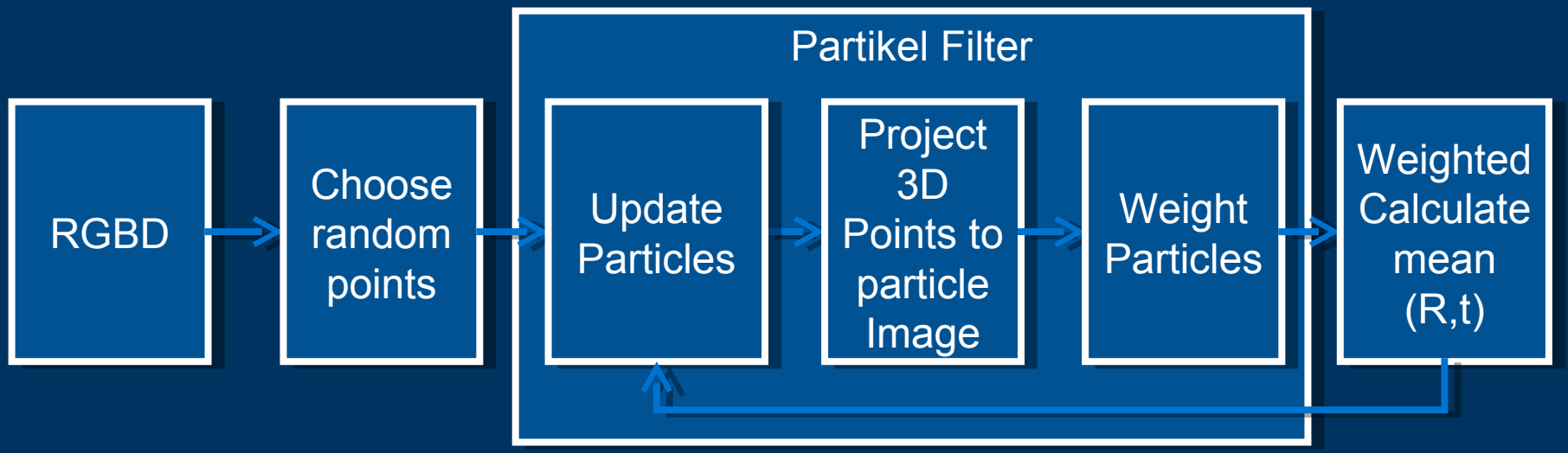

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Why Random Points

- Feature Point detection is Time consuming
- Kinect data becomes unstable at edges
- Moving objects tend to have many features
- Randomisation prevents bias

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Particle Filter

- Models probability distribution of the Camera Pose
- Each Particle represents one Pose hypothesis
- Can have multiple hypothesis that are good (reoccuring patterns)

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Roadmap

- Frame to frame Pose estimation without movement
- Add movement
- Reduce drift using Keyframes
- Remove drift by building a global map