ASGARD1
Automotive radar verification

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Background

- Background in radar, signal and image processing, FPGA, AI, neural networks and network security
- Got PhD in 2013 in communication engineering and cognitive radio
- Founded Uniquesec AB in 2013 for radar signal processing
- First contract for radar-based level measurement in 2014
- Fahimeh joined in March 2015
- Two patent applications filed in 2015 and 5 in 2016
- Investment of 1.9M SEK secured in 2015 and 1M SEK in 2017
- Three patents granted for automotive radar verification in 2017

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Uniquesec Products

- UR2: Advanced radar system
- ASGARD1: Automatic Signature Generation for Automotive Radars
- RDP1: Radar Development Platform
- ARCS: Automatic Radar Characterisation and Calibration System

Difficult verification

- Complex systems are hard to verify
- Long expeditions is needed
- Ground truth is missing
- Rare and important cases are not easily observed
- Too many cases and scenarios exists for verification
- Different sensors and hardware

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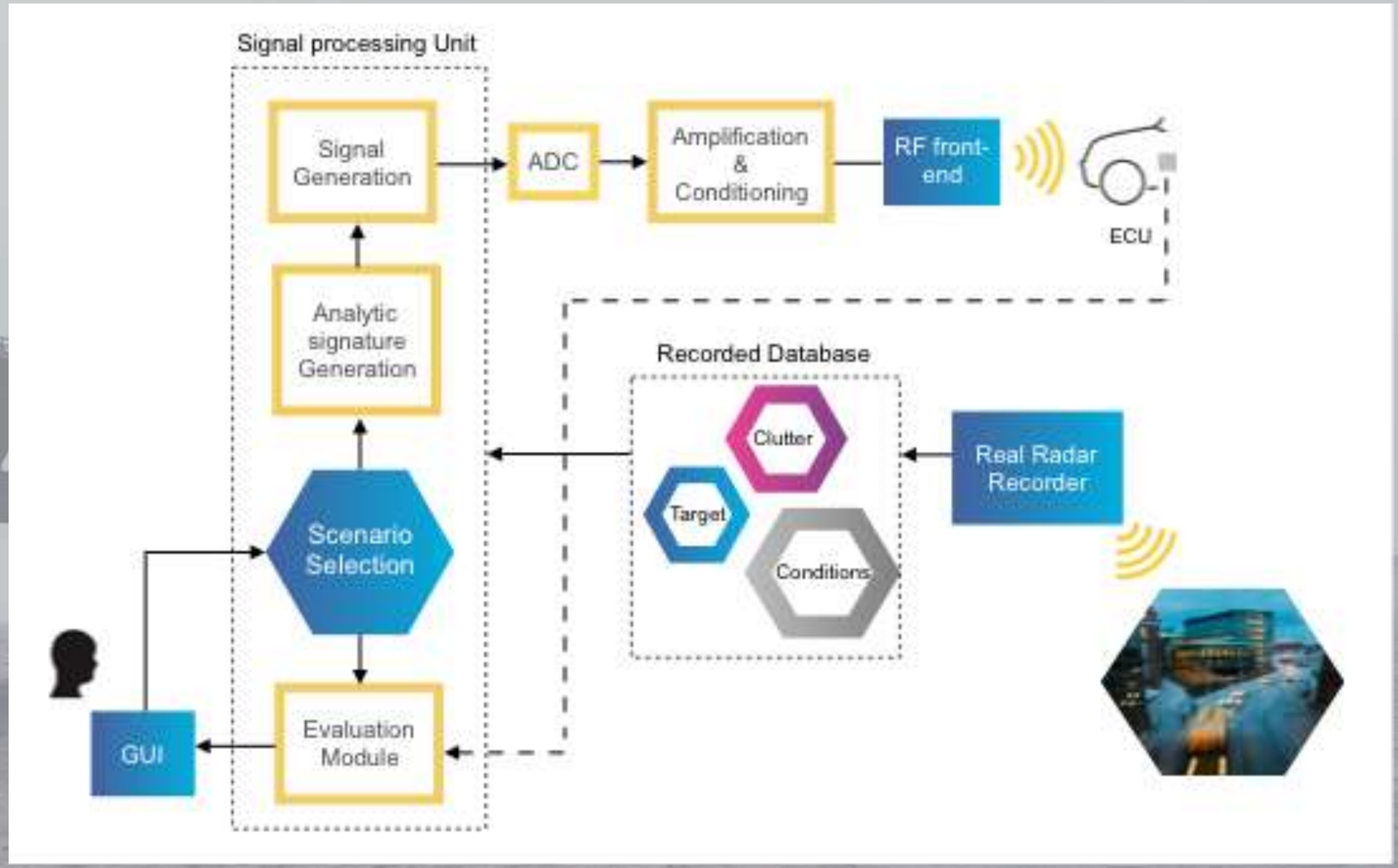
Current verification vs. our solution

- Cons
  - Test in chamber for characterization
  - Test by driving expedition
    - Missing ground truth
    - Uncontrolled environment
    - Cannot be reproduced
    - Expensive and time consuming
    - Does not cover rare situations
    - Hard to differentiate sensor vs. function performance

- Pros
  - Improved verification quality
  - Capturing reality in the lab
  - Fully controlled and randomized scenario generation
  - HIL setup for real-time sensor/function characterization
  - Cheap and accessible
  - Cover dangerous scenarios
  - FULL CONTROL OVER GROUND TRUTH

ASGARD1



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