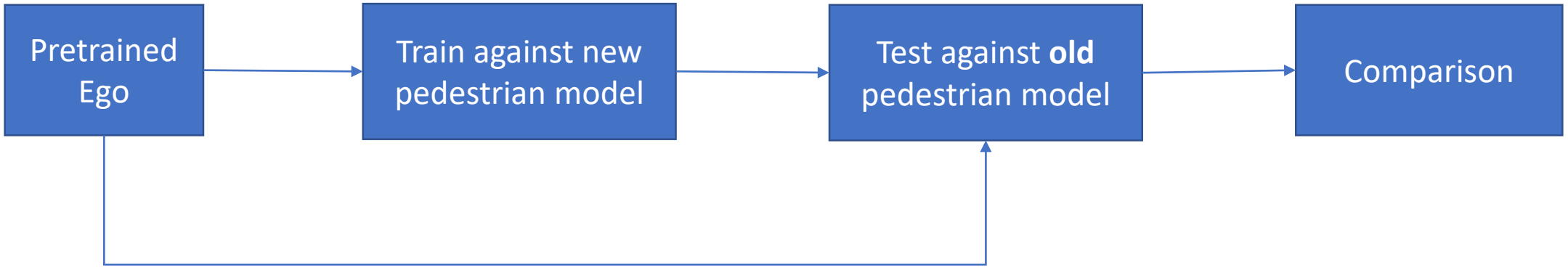
Research Pipeline in Carla

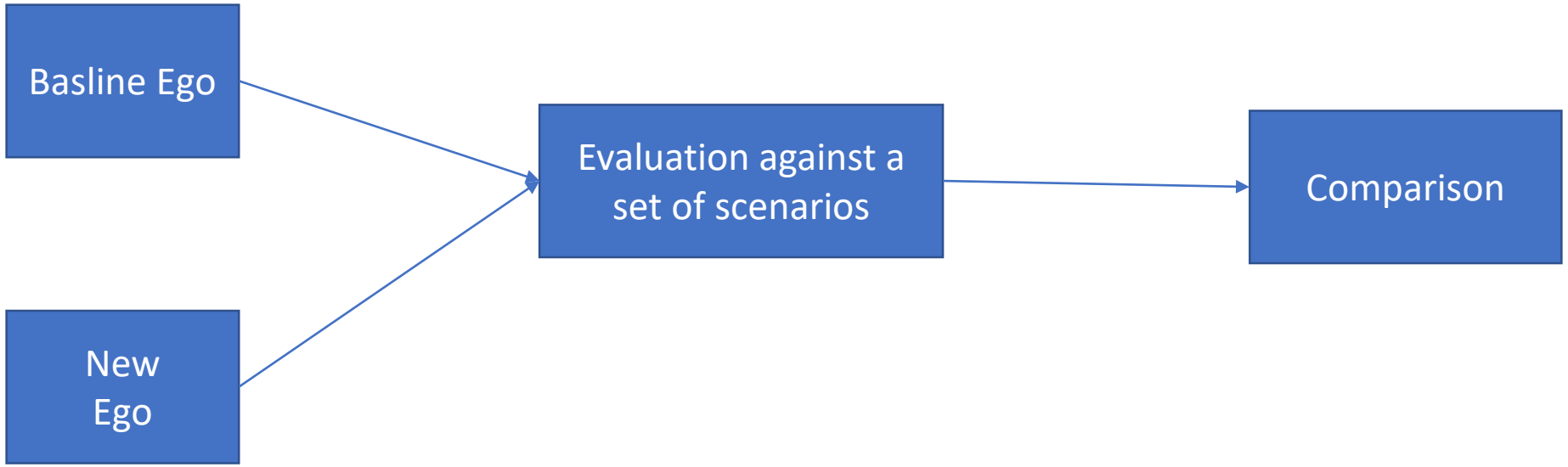
Requirements

- Driver Modeling
  - Specific test scenarios with other vehicles and pedestrians
  - Metrics to evaluate performance
  - Access to sensors
- Pedestrian Modeling
  - An ego model
  - Specific test scenarios with other vehicles and pedestrians
  - Metrics to evaluate ego’s performance.

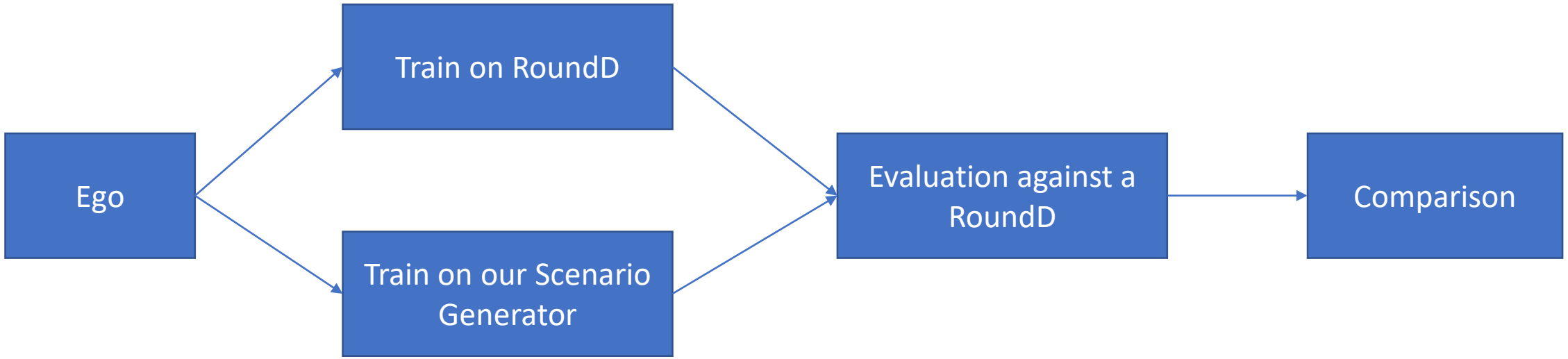
Pedestrian Modeling



Driver Modeling



Roundabout Driver Evaluation



Driver Modeling

Two different approaches:

1. A new architecture
2. A new/novel training approach for an existing architecture for existing scenarios.
3. A set of new scenarios (or a method to generate such scenarios). – we need to evaluate the importance of testing against these scenarios.

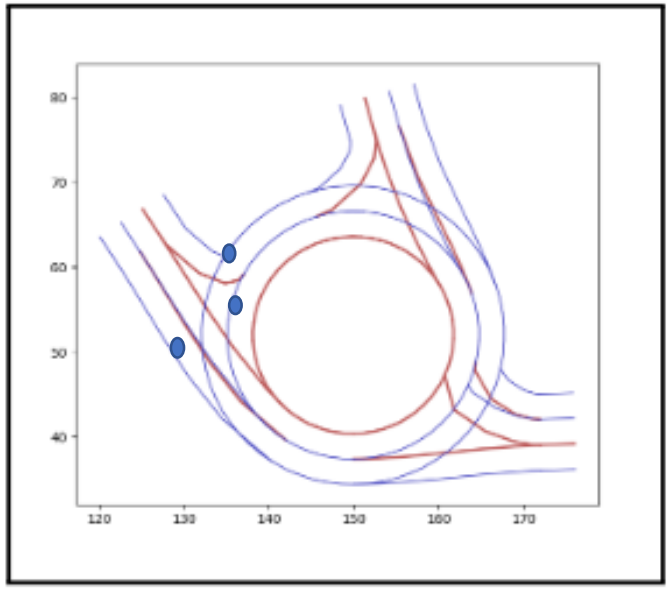
Tasks

- A search for pedestrian spawn points wrt the direction and position of the ego vehicle. - Mahi
- Integration – Muktadir
- Roundabout Map Creation – Zarif
- Pedestrian-based scenario Generation – Ryan & Muktadir
- Non-ego vehicle based scenario Generation – Jawad
- Pedestrian behaviors – Muktadir
- Human driver - Jawad

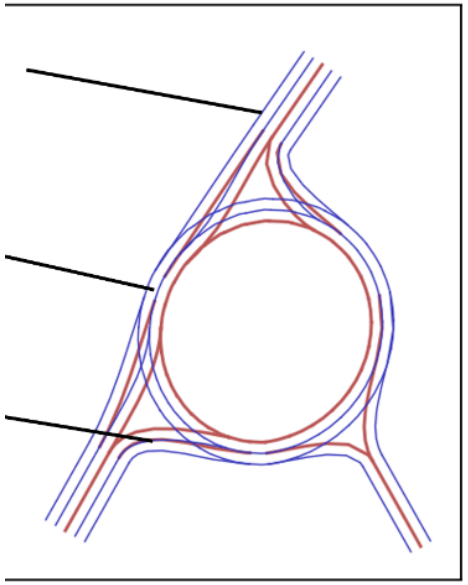
Roundabout Driver Modeling

- Maps – Zarif
- Spawn Pedestrians – Mahi
- Integration – Muktadir & Jawad
- Add Pedestrian Behavior – Muktadir
- Add NPC/human drivers – Jawad
- Setup baseline ego – Mahi + Zarif
- First set of scenarios - Ryan

First set of scenarios



(a)



2 week plan (28th July – 11th August)

- Integration goals:
  - Integrate the pedestrian nav point generator so that we can generate pedestrians any time in any scenario.
  - Integrate Carla srunner and leaderboard. (partially done, but need new repository)
- First set of scenarios
  - Functional description only – Ryan
- 3 roundabouts from junction art – Zarif
- Fix spawn-point generator and make a python package – Mahi
- Collecting data through Roach. -

Next

- Converting RoundD to Carla Scenarios