

# Tarun Rambha, IISc:

- Share bicycle ride benefits
  - Ideal for short trips
  - Intermodal connections
  - Eco-friendliness
  - Health benefits.
- Learn from failures of previous operators such as Mobike, Pedl and ofo.
- Need to rebalance based on estimated demand
  - Oversupply may lead to property damage and abandoning of cycles.
- Demand is influenced by
  - Supply
  - Supporting infrastructure
  - Weather factors, etc.

- Customers arrival is assumed to be Poisson distribution.
- Renting is done using Maximum Likelihood Estimation (MLE).
- Static balancing of supply:
  - Done at night.
  - Travelling Salesman Problem (TSP) used.
- Dynamic balancing of supply:
  - Done during daytime in real-time.
  - Operation period is divided into an infinite number of steps
- Objective function: Maximize profit (Revenue-relocation cost)
- Proposed Markov Decision Process (MDP) framework to decide the number of cycles to be moved between stations and hubs.