Challenges in Drone Power Measurement

Data Collecting
- Wind sensor
- Custom power measurement board
- DJI data logger

Time synchronization

$\Rightarrow$

Processed Data
- Velocity, acceleration
- Payload weight
- Wind speed (N, E)
- Power consumption

$\Downarrow$

Power Consumption Model for Drones

Power Consumption Model
- Neural network model
- Train with a given hyper-parameter

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Validate Model & New Hyper-parameter
- Record validation loss
- Create a new hyper-parameter

$\Downarrow$

Flight Energy Optimization and Validation

Create the Graph
- Environment (obstacle)
- Nodes are a triple of the position, speed, and angle
- Edge weights represent energy consumption

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Find the Optimal Path
- Find the optimal path using Dijkstra's algorithm
- Generate a base path
- Compare the energy consumption of both paths