

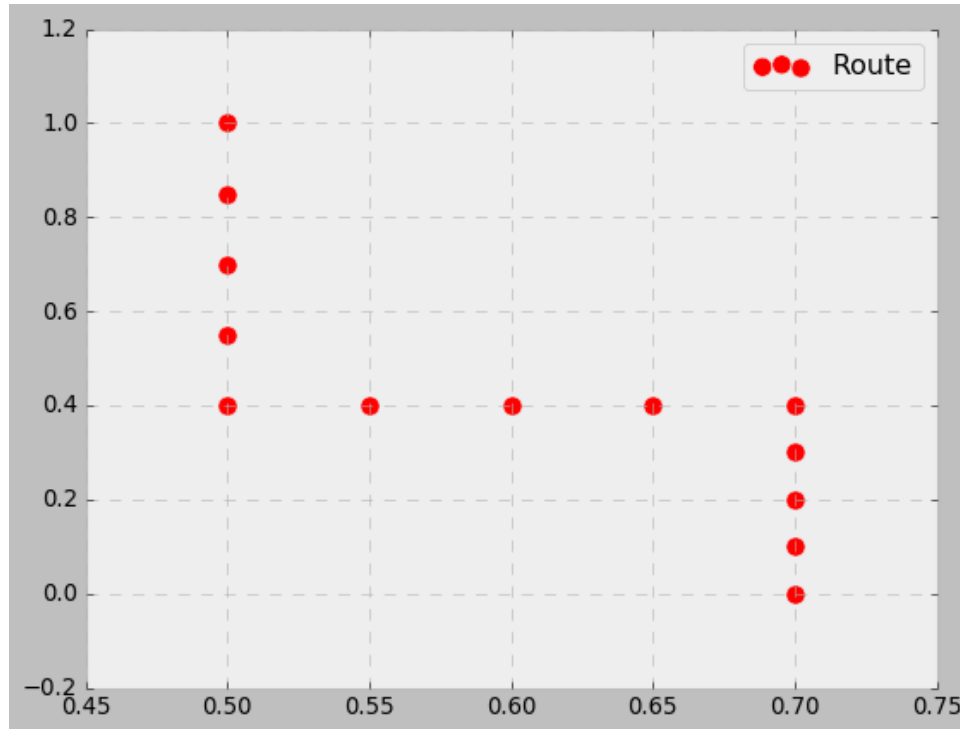
# **DSP RESEARCH PRESENTATION**

# THE PROBLEM



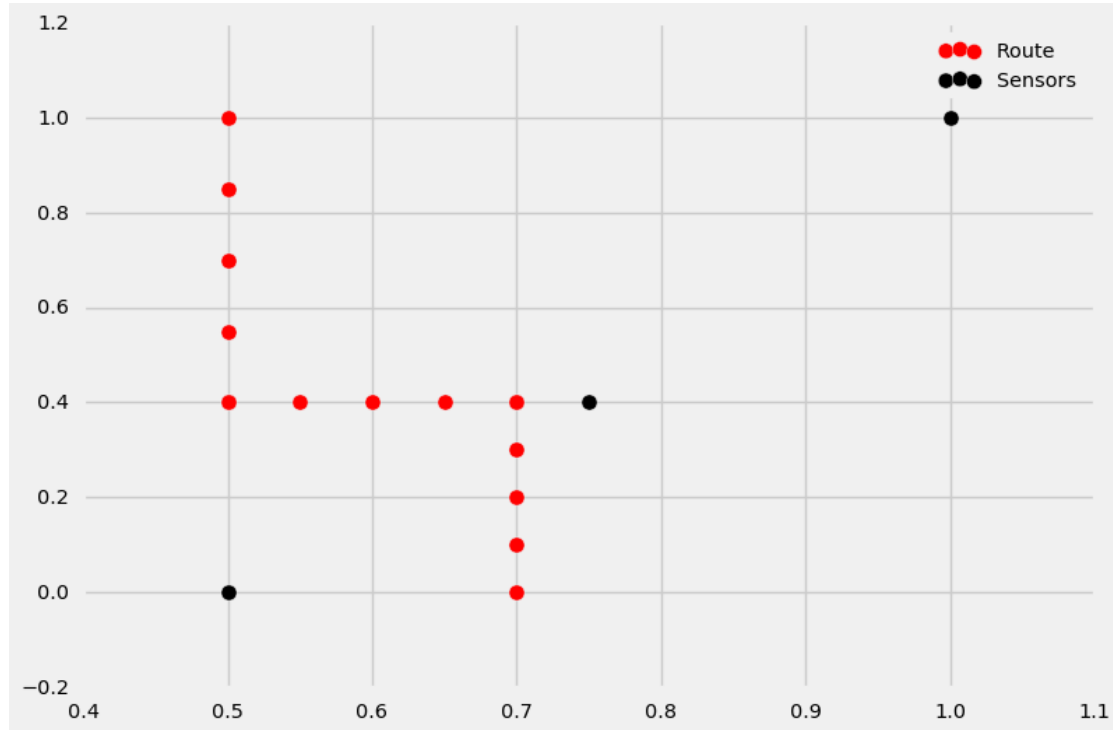
Snippet of the actual route from Lohit to Library

# REPRESENTATION



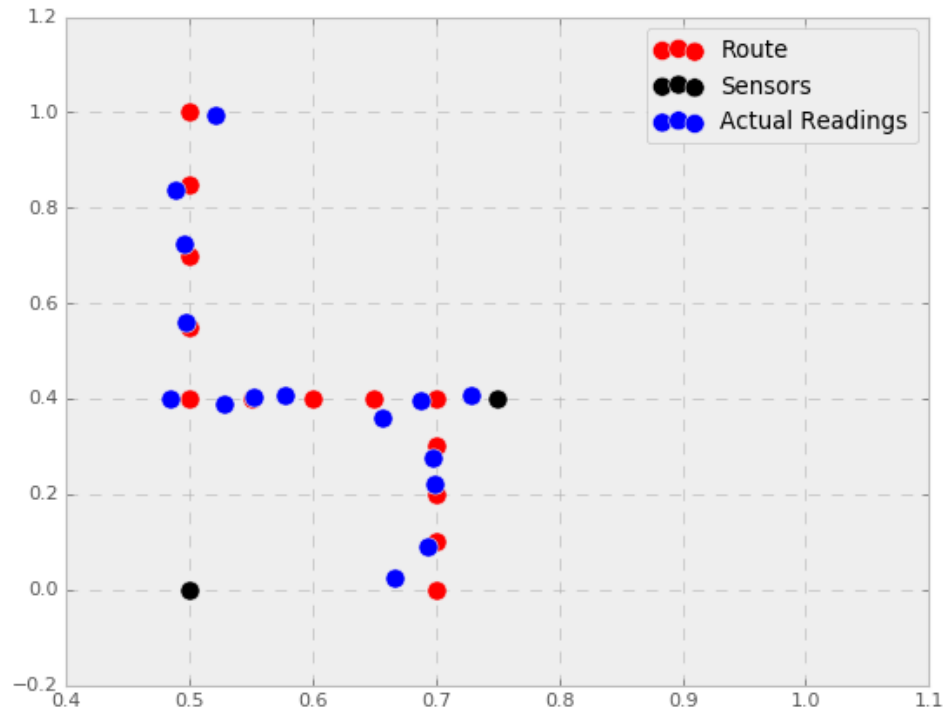
Representative Route

# SENSORS



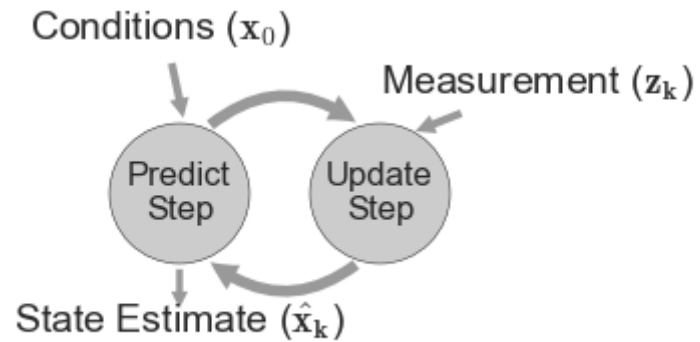
Sensor Locations

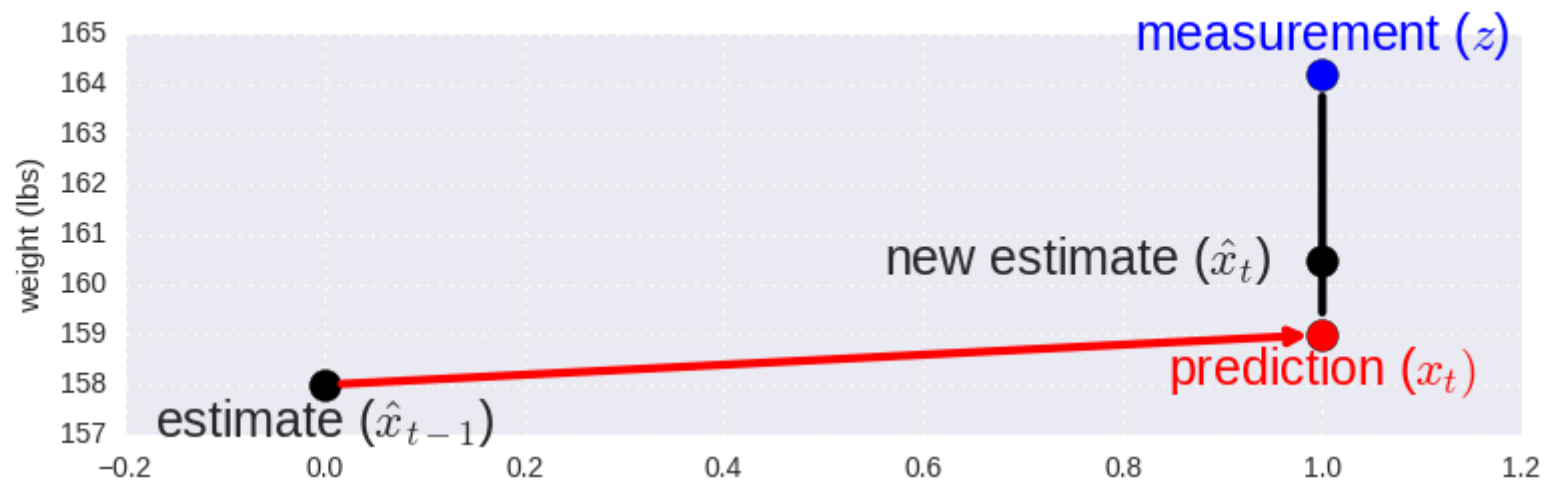
# MEASUREMENT



Measurement are noisy!

# BRIEF ON BAYES FILTER







# WHY PARTICLE FILTERS?

## APPLICATIONS

1. Localisations of Robots
2. Stock Trading
3. Tracking aircrafts and other locomotives (SDVs)



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7. Occlusions - Collisions can be accounted for

# HOW PARTICLE FILTERS WORK?

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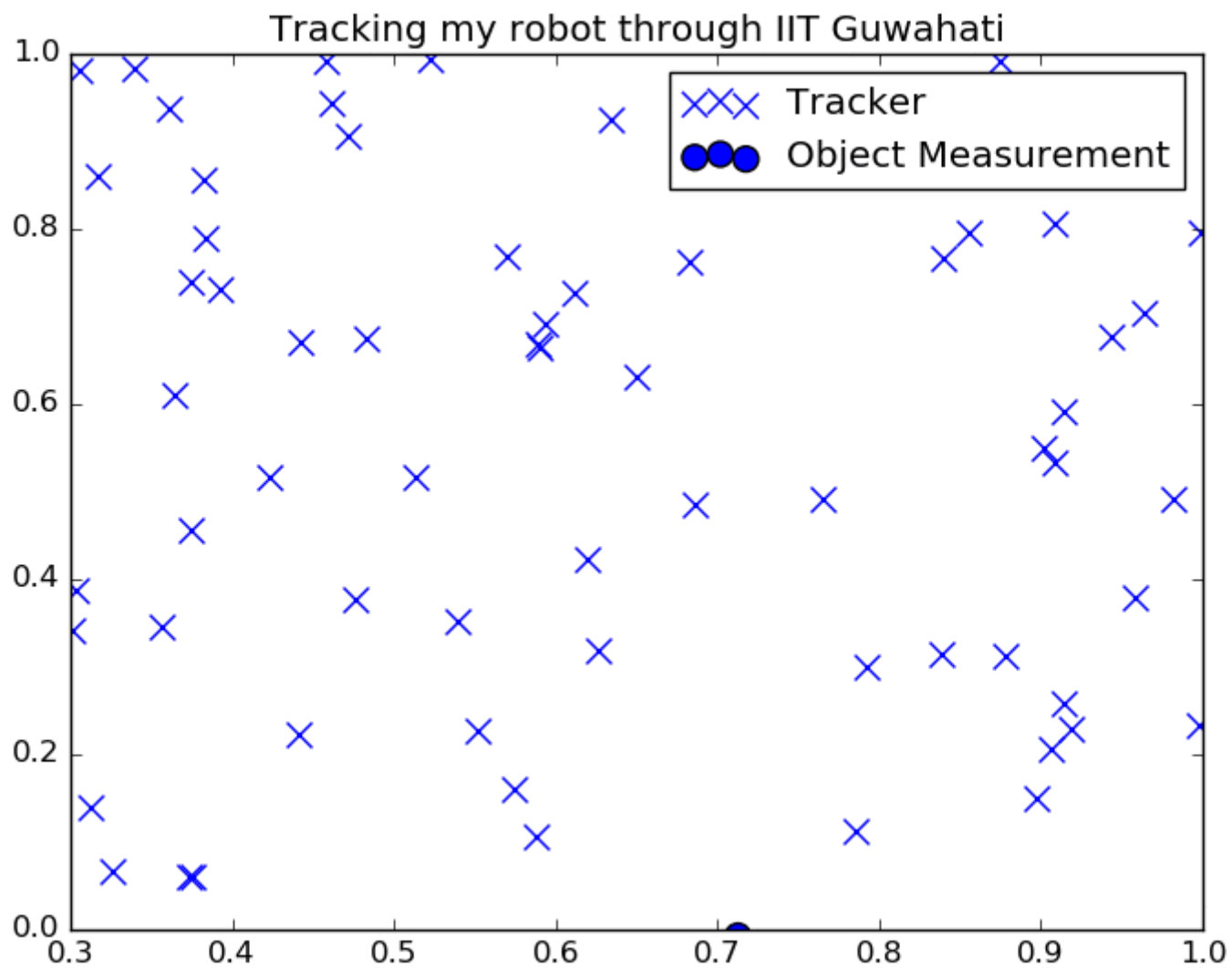
Steps Involved:

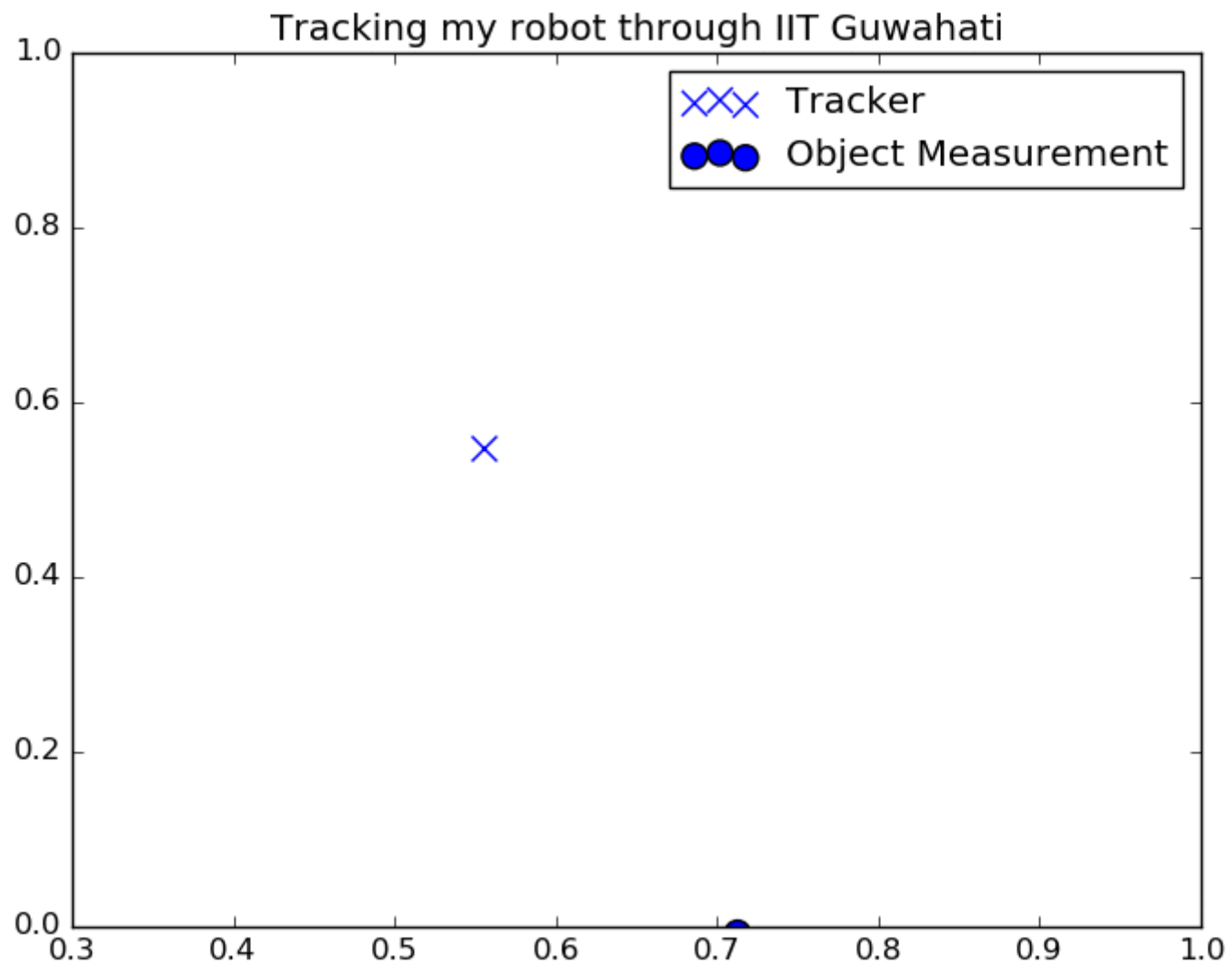
1. Generate Particles
2. Predict Next State of the Particles
3. Update Particles according to measurements
4. Resample Particles
5. Compute Estimate

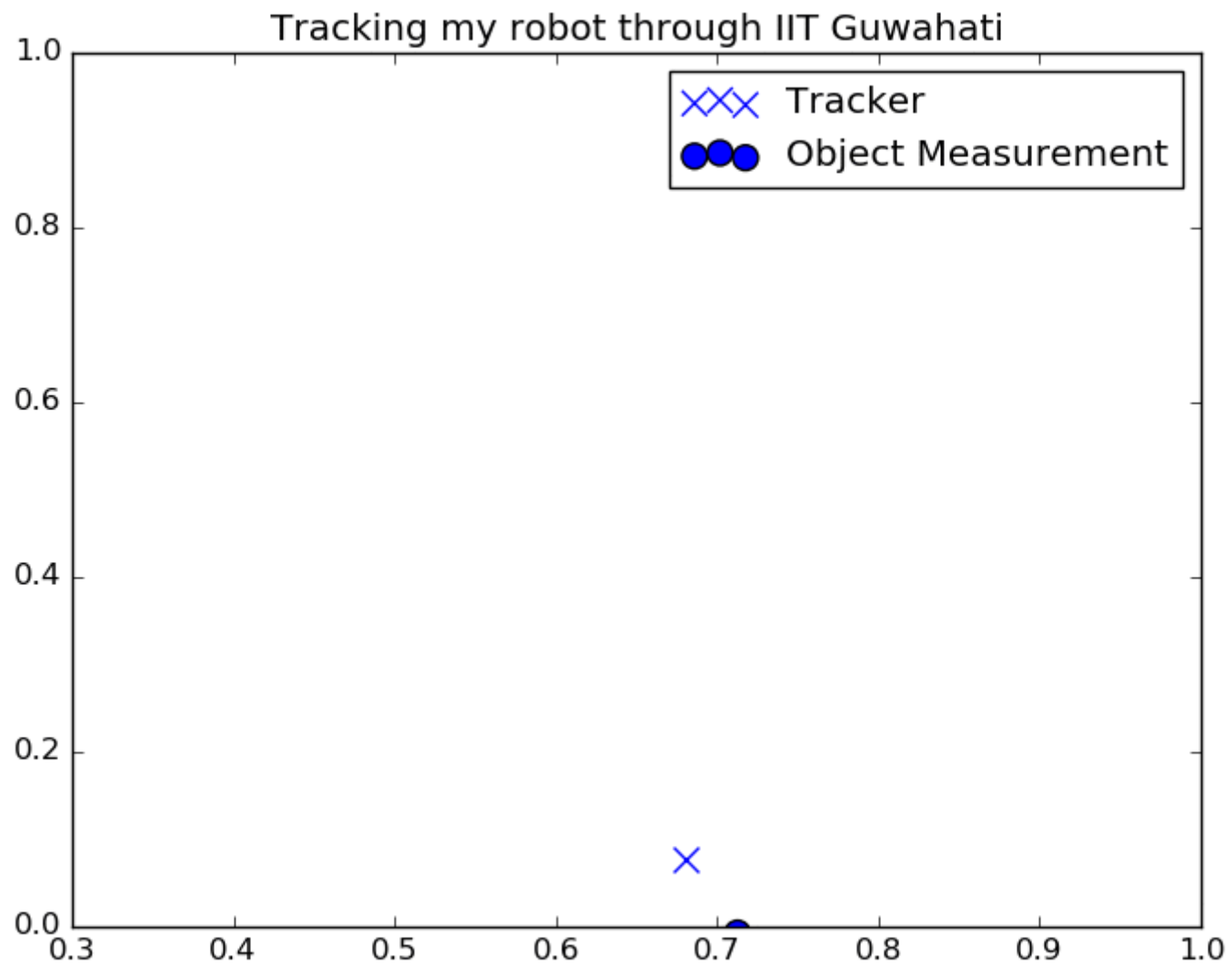


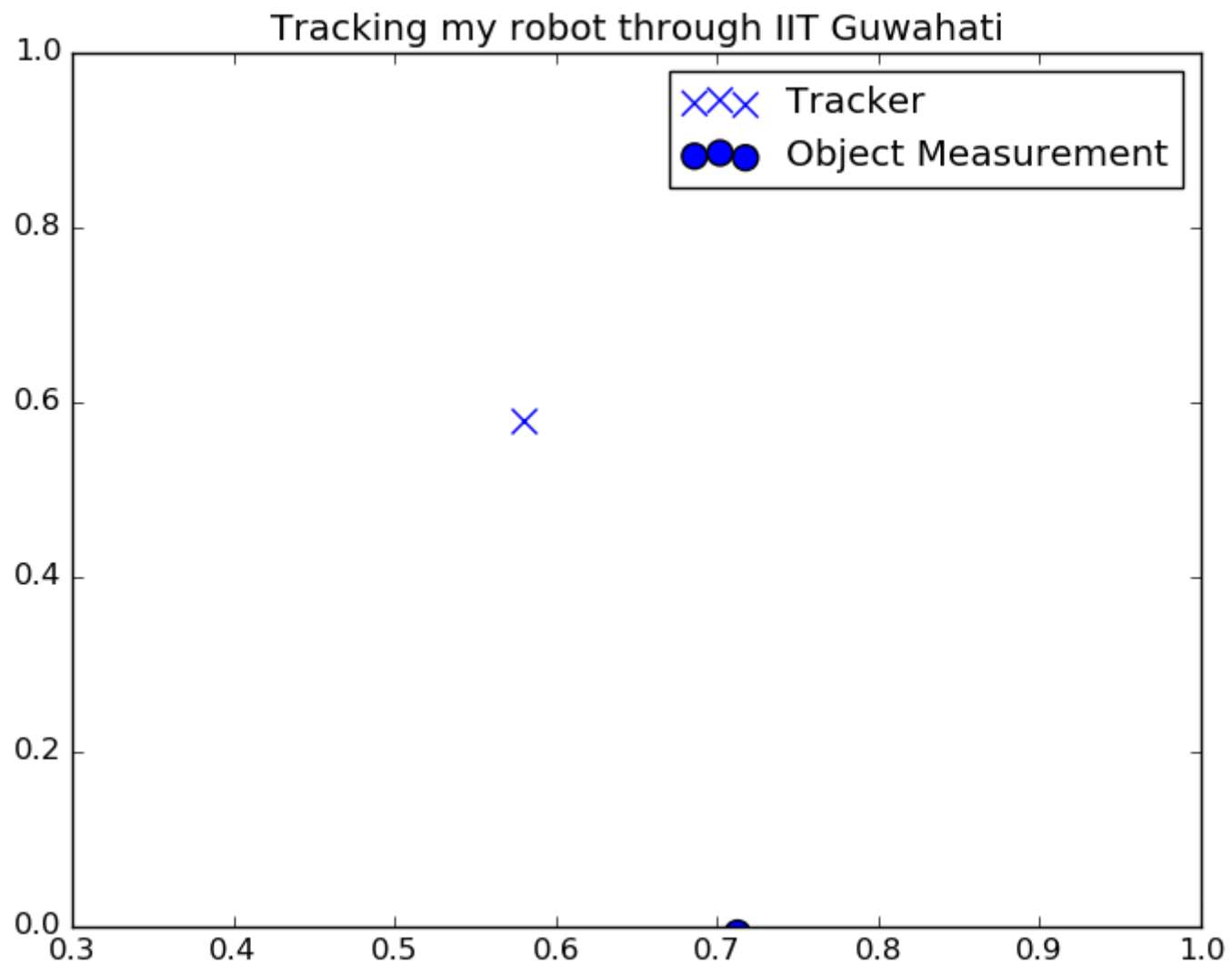
# **SIMULATIONS, BOTTLENECKS AND IMPROVEMENTS**

# SIMULATION RESULTS









# **BOTTLENECKS AND IMPROVEMENTS**

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- Filter Degeneracy



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- Filter Degeneracy
- Filter Divergence - Noise of the sensor
- Computation Costs

Thanks!