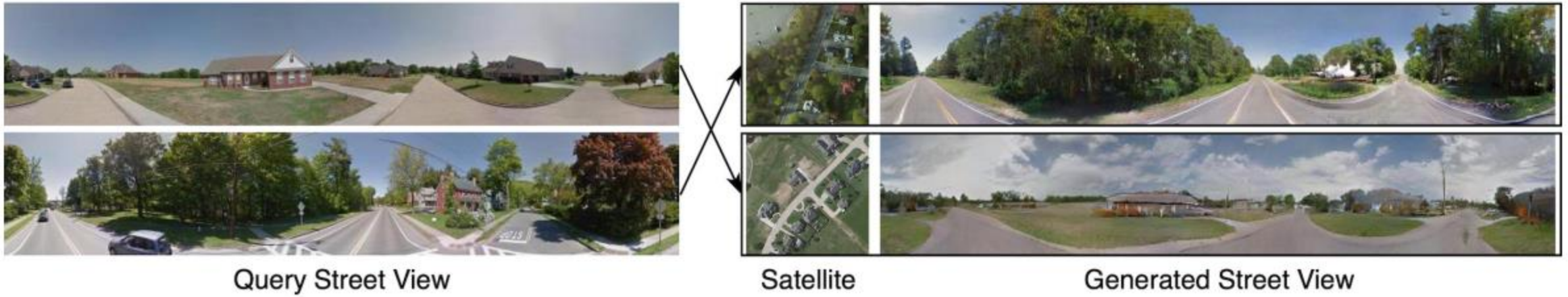
Special Topics in Applications (AIL861)
Artificial Intelligence for Earth Observation
Lecture 25

Instructor: Sudipan Saha

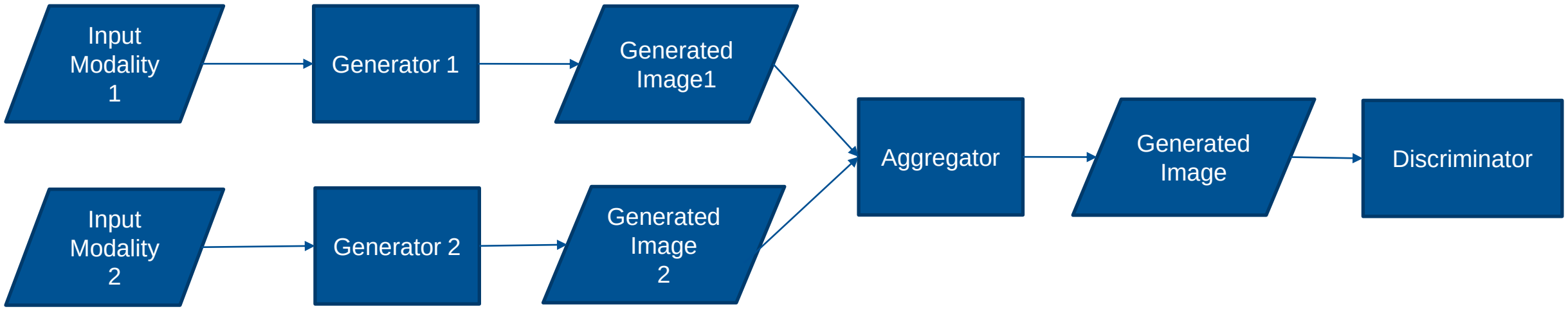
Satellite to Street View Generation



Coming Down to Earth: Satellite-to-Street View Synthesis for Geo-Localization, 2021

Multimodal Conditional Image Synthesis

Can synthesize images conditioned on multiple input modalities.



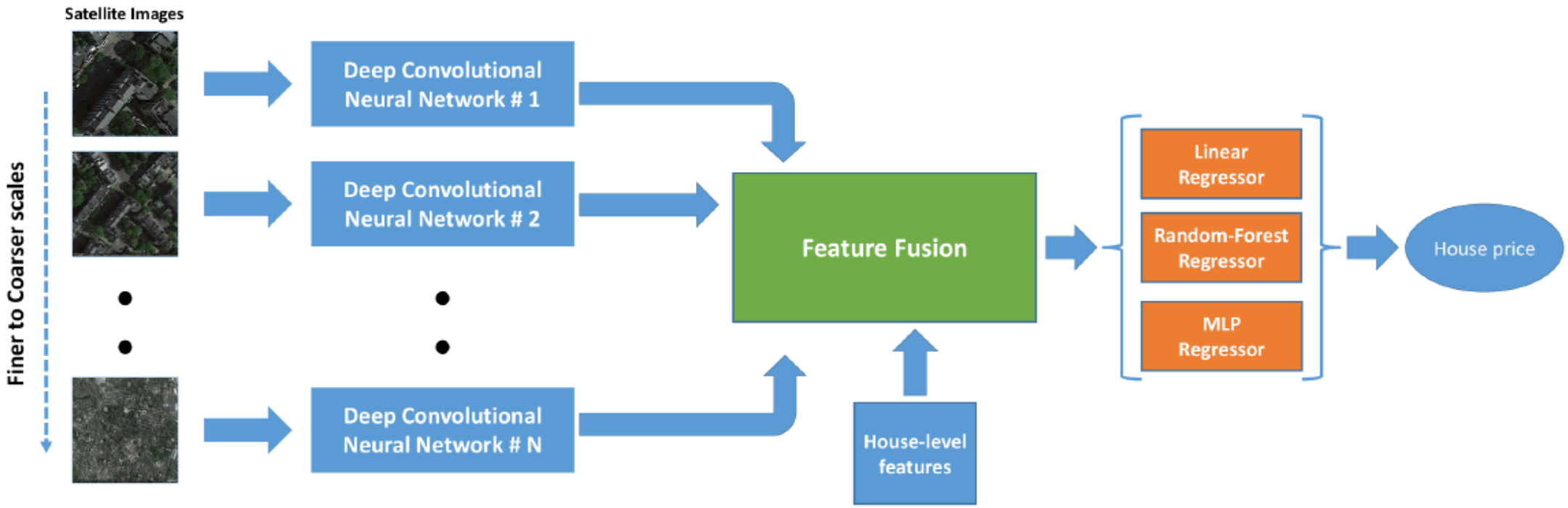
Population (Density) Estimation

- ✓ What type of problem?
- ✓ Which inputs?
- ✓ Would you consider output to be smoothly varying or constant over grid or some other unit?

Nighttime light

- ✓ Specialized sensors for nighttime light: Visible Infrared Imaging Radiometer Suite (VIIRS) Day/Night Band (DNB)
- ✓ Are they really indicator of poverty?
- ✓ Can also be used a proxy for urban built-up area.

Housing Price Estimation



Beyond Spatial Auto-Regressive Models: Predicting Housing Prices with Satellite Imagery, 2017

Conflict Management

AI4EO

Social Media Data

Other Data Sources

AI

Damage Mapping

Forecasting conflict

Crop Monitoring

Decision Makers

Preparing relief for future conflicts

Preparing for food shortage