# Graph Neural Networks for Service Assignment

Abstract

Graph Neural Networks (GNN) is a novel approach and a class of deep learning methods designed to perform inference on data described by graphs. These are neural networks that can be directly applied to graphs, and provide an easy way to do node-level, edge-level, and graph-level prediction tasks.

In this project the students will use GNN in order to solve a graph theory problem that have a strong connection to realistic problems, the students will need to learn how to use GNNs and implement such network that apply to the problem that will be specifically presented to the students that do the project.
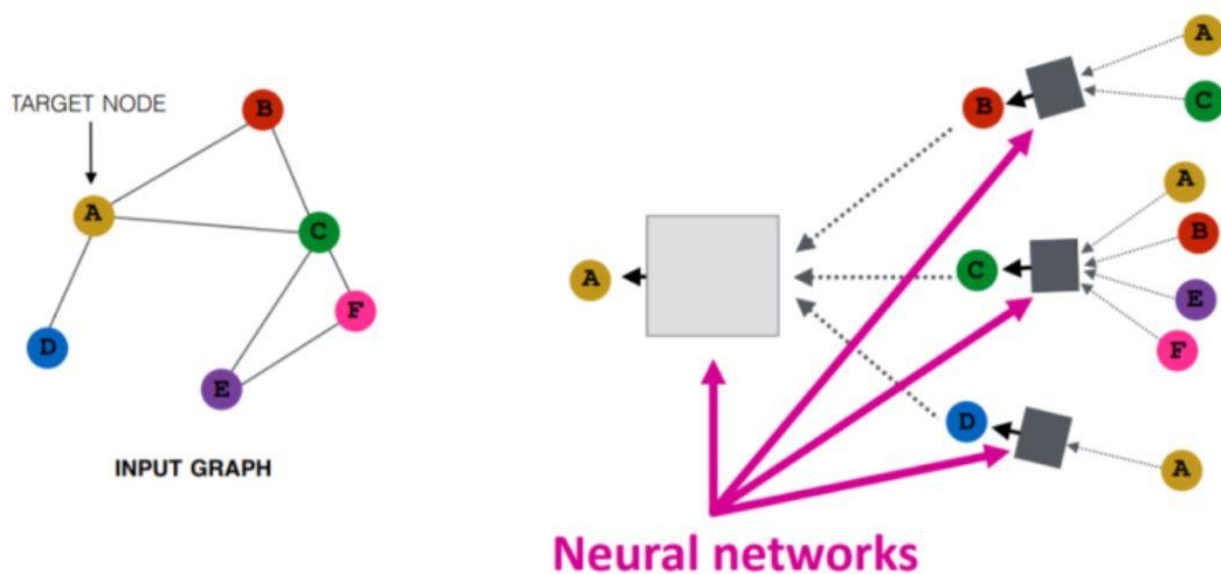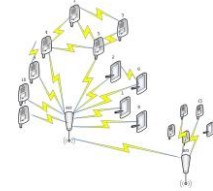
Objective

The purpose of this project is to implement GNN to predict network performance in a specific topology/bandwidth/flow requirements state..

Project Overview

1. Implement GNN on simple network graph with simple (easy to comply) requirements
2. Add complexity to the model.

3. Define KPIs (Key Performance Indicators) and analyze the model under different conditions.
4.

Notes

- The above list is an estimate. Goals and tasks might be modified during the first few weeks of the projects before the finalization of High Level Design Document.
- General requirements for all LCCN Projects are specified at the lab website: https://lccn.cs.technion.ac.il/lab-courses/

Instructors

Dor Harris, Eran Tavor