Predict clinical outcome of cancer patients
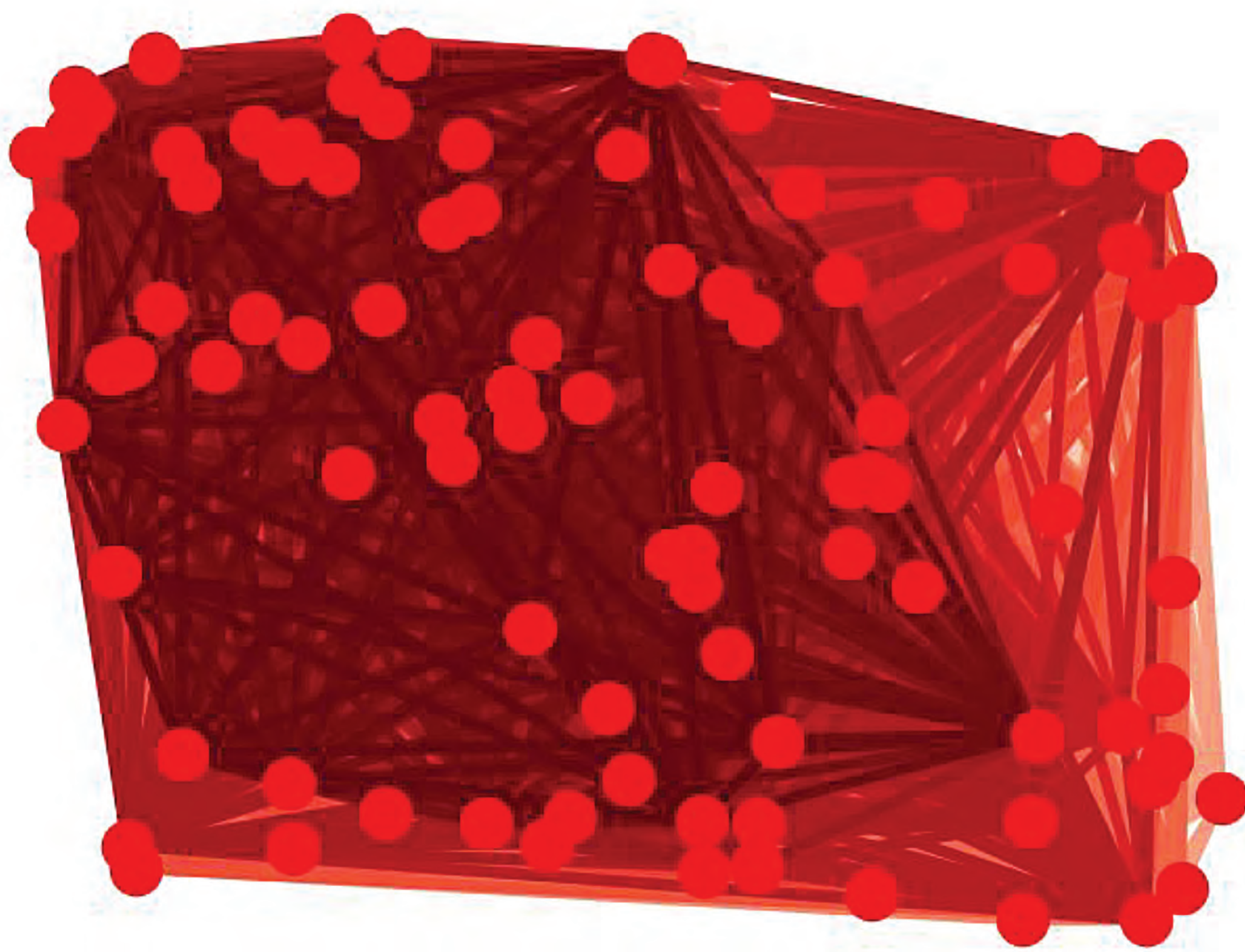## A deep learning approach with the use of multi-omics data
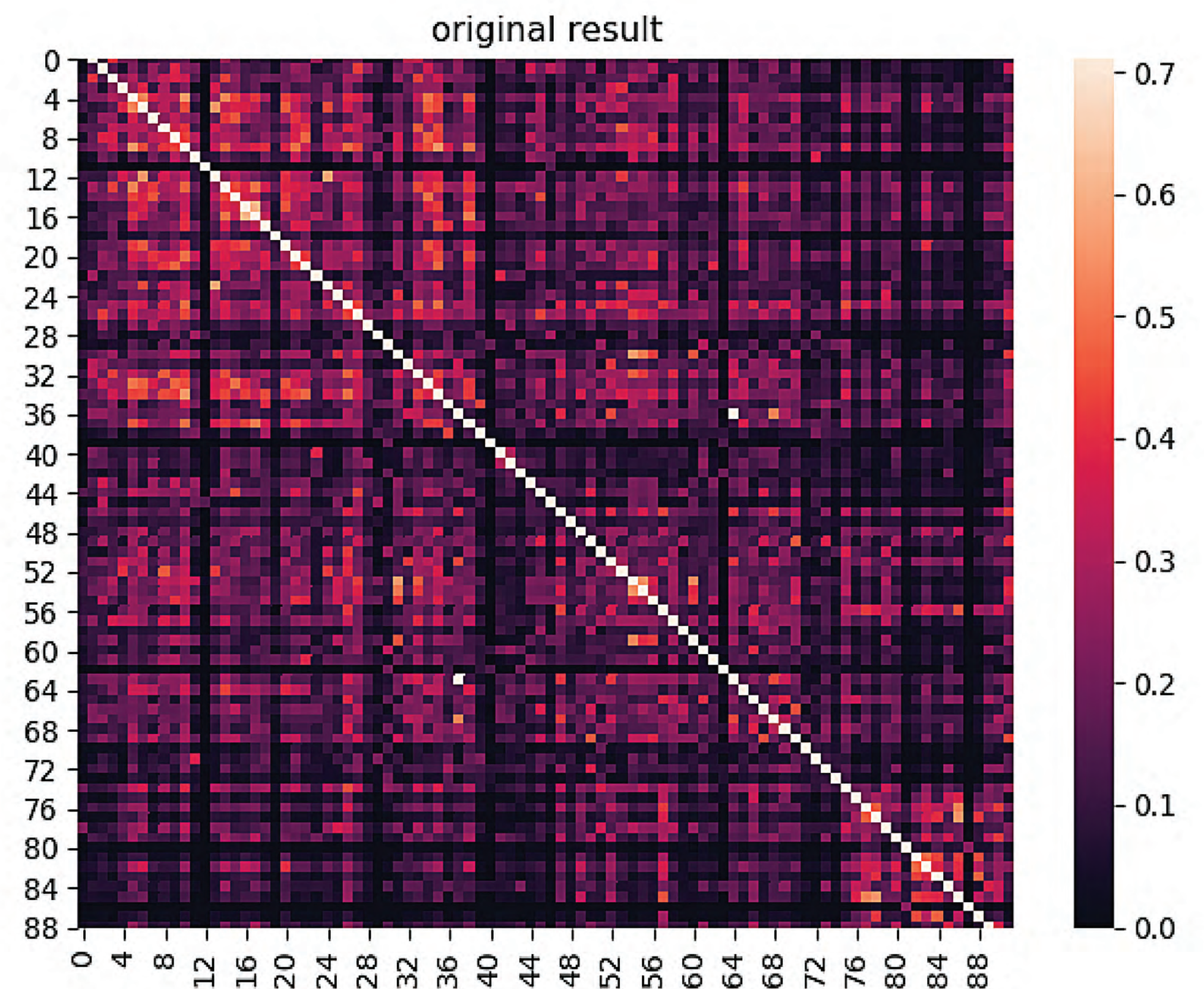

Fig1 Patient Similarity Network

Fig2 Patient Similarity Network heatmap

Project Objectives:

This project aims to use multi-omics data to predict the clinical outcome of cancer patients, like disease progression and death from disease. The multi-omics data are used to build patients similarity network (PSN) and topological features will be extracted from the network built. The features will be used to train deep neural network model in order to predict the clinical outcome. This project investigates if the topological features extracted from the multi-omics data are able to train the neural network model to have high accuracy on classifying the clinical outcome of patients. Also, for PSNs from same group of patients, similarity network fusion (SNF) method will be performed to combine the network to study if it is more accurate as input features. The above figures demonstrate the generated Patient Similarity Network, where each node represents a patients and the edge is calculated using Wilcoxon Analysis and rescaled using Weighted Gene Co-Expression Analysis.

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