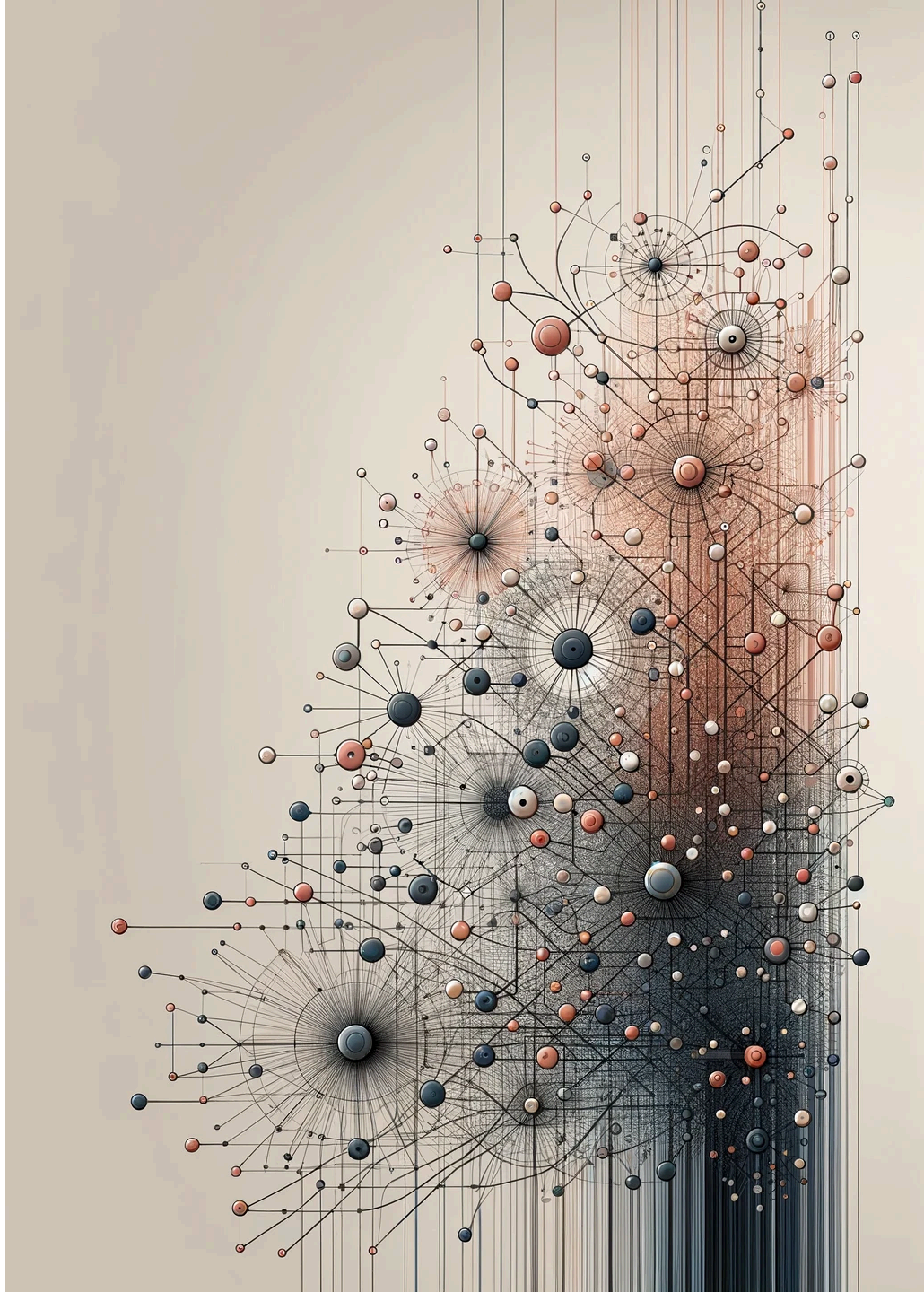
UNIVERSITÀ DI TORINO

Analisi e Visualizzazione delle Reti Complesse

NS05b - NetworkX walkthrough (part I)

Prof. Rossano Schifanella



UNIVERSITÀ DI TORINO

Introduction to NetworkX

NetworkX Basics

- Create and manipulate a graph
- Graphs representations
- Neighbors
- Degree, average degree, density, and basic functions

NetworkX Graph Types

- Undirected, directed, weighted
- Multigraphs
- Bipartite graphs
- Multilayer networks (external packages)

UNIVERSITÀ DI TORINO

Reading and Writing Graphs

- Adjacency list
- Edge list
- JSON
- GraphML
- Pajek

Drawing

- Draw with Matplotlib
- Graph layouts

Paths

- paths, shortest paths, average shortest path length
- diameter, distances

Components

- connectivity, strong connectivity, weak connectivity

Clustering

- Clustering coefficient, average clustering coefficient, transitivity

UNIVERSITÀ DI TORINO

Triads

- Triads

Bridges

- Bridge, local bridge, span

Assortativity

- Assortativity
- **[optional]** Structural holes
- **[optional]** Small world