

Universal Network Edge Prediction Algorithm

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BRIEF DESCRIPTION

An algorithm that predicts missing or unobserved connections in any type of complex network by analyzing local structural patterns.

FULL DESCRIPTION

This innovative algorithm identifies potential edges between nodes in incomplete or noisy real-world networks. Unlike traditional methods focused on specific network types or simple patterns, this approach adapts dynamically to thousands of local structural motifs relevant to the network at hand—whether social, biochemical, or commercial. It enables accurate prediction of hidden or missing interactions such as new friends in social networks, drug-protein interactions in pharmacology, or customer-product interest in advertising networks, all without requiring extensive training data.

SUGGESTED USES

- » Social Networking: Suggesting new friends or connections on platforms like Facebook.
- » Pharmaceutical and Biotechnology: Predicting novel drug-protein or drug-drug interactions.
- » Advertising and E-commerce: Recommending potentially interesting products to customers based on purchase patterns.
- » Any data-driven industry utilizing network or graph representations with incomplete data.
- » Research institutions and companies seeking to leverage network insights without massive training datasets.

ADVANTAGES

- » Universal applicability to any network type regardless of domain (social, biochemical, commercial, etc.).
- » Dynamically identifies the most relevant local network structures for prediction.
- » Operates effectively on incomplete and noisy datasets.
- » Requires significantly less training data compared to AI/ML approaches.
- » Rapid prediction turnaround enabling practical real-world usage.
- » Scalable from small subnetworks to very large complex networks.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- » **Biotechnology**
 - » Bioinformatics
- » **Communications**
 - » Internet
 - » Networking
- » **Computer**
 - » Software
- » **Research Tools**
 - » Bioinformatics

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