LIN WEI

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Publication List

Prof. Sebastian Wandelt, **Lin Wei**, et al. "From random failures to targeted attacks in network dismantling." Reliability Engineering System Safety (2021): 108146 IF=6.188(Q1) DOI

Lin Wei, Prof. Sebastian Wandelt, and Prof. Xiaoqian Sun. "Efficient network dismantling through genetic algorithms." Soft Computing (2021): 1-19. IF=3.643(Q2) DOI

Education

Beihang University (Rank **0.3%** in the university entrance exam)   **Sep. 2019 – June 2023(expected)**

BSE Mechanical Engineering   GPA:3.83/4   90.7/100   IELTS:7.0

Relevant Courses

- Calculus(100)
- Probability and Statistic(100)
- Data management & AI(100)
- Intro. to python(100)
- Linear algebra(95)
- Numerical analysis(95)
- Deep learning(96)
- NLP(91)

Research Experience

Efficient Network Dismantling Through Genetic Algorithm   **July 2020 – March 2021**

Undergraduate Researcher

- Designed an exact method for measuring the effectiveness of a dismantling strategy for a network with linear runtime of the network size, which is significant faster than existing methods.
- Proposed a novel network dismantle technique based on genetic algorithms. Develop and analyze a collection of genetic population generators, which aim at providing a rich set of initial genetic material to the framework. Designed several genetic operators, which have the tendency to place critical nodes to the front of the attack sequence.
- Perform sensitivity analysis on variants of our method, including different choices of the initial population and genetic parameters.
- Applied the Bayesian signed-up rank Test to compare our algorithm with other state-of-the-art methods. It turned out that our algorithm can get the attack sequence of rather high quality, while spending much less runtime, which make a good trade-off between quality of results and runtime.

From Random Failures to Targeted Attacks in Network Dismantling   **Jan 2021 – April 2021**

Undergraduate Researcher

- Proposed an efficient transformation process that is able to convert a collection of random failure traces generated by purely random node sequences into highly effective attacks, inspired by recent works on the node explosive percolation.
- Designed an iterative framework for the scalable computation of network attacks, which gradually performs moree detailed attack revisions.
- Performed a sensitivity analysis to do the parameter tuning on the proposed framework.

Contest Experience

Finalist in Interdisciplinary Contest In Modeling (Top 1% among competitors worldwide)   **2021**

Theme: Unveil the Mystery behind Musical Evolution

- Build up a computational framework to evaluate the effect of musical influence on the temporal and spatial development of artist and genre.
- Use Heterogeneous Euclidean-Overlap Metric to measure the music similarity.
- Propose the General Index of Genre Development based on the combined effect of I-index, popularity and release frequency of intra-genre artists.

Teaching Experience

Teaching Assistance, Computer science and Programming   **September 2020 – January 2021**

Teaching Assistance, Data Management and Artificial Intelligent   **March 2021 – June 2021**

- Design the content of lab class and teach lab class.
- Design and grade homework.
- Design the mid-tern exam.
- Design the course project, including intelligent agent for Snake Game and N-puzzle.

Scholarship/Award

The first prize of 2020 Beihang Excellent Learning Scholarship

2020 Outstanding Student of Beihang University

2021 Merit Student of Beihang University

The first prize of 2021 Beihang Academic Competition Scholarship