

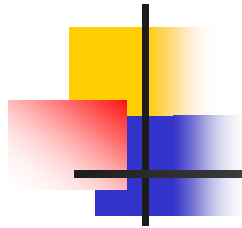
# Special Topics on Social Network Analysis and Data Mining

## 社群網路與資料探勘專論

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# Let's Start with the Questions

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- What is Social Network Analysis?
  - What is a Social Network?
- What is Data Mining?



# What is a Social Network?

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- A social network is a social structure made up of individuals (or organizations) called "nodes", which are tied (connected) by one or more specific types of interdependency, such as friendship, kinship, common interest, financial exchange, dislike, sexual relationships, or relationships of beliefs, knowledge or prestige.

- From Wikipedia



# 什麼是社群網路？

- 社群網路是由許多節點構成的一種社會結構，節點通常是指個人或組織。
- 社群網路代表各種社會關係，經由這些社會關係，把從偶然相識的泛泛之交到緊密結合的家庭關係的各種人們或組織串連起來。
- 社群網路由一個或多個特定類型的相互依存，如價值觀、理想、觀念、金融交流、友誼、血緣關係、不喜歡、衝突或貿易。
- 由此產生的圖形結構往往是非常複雜的。

- From Wikipedia



# What is Social Network Analysis?

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- Social network analysis views social relationships in terms of network theory consisting of nodes and ties (also called edges, links, or connections)
  - Nodes are the individual actors within the networks, and
  - Ties are the relationships between the actors
- 社交網路分析是用來檢視節點、連結之間的社會關係。

- From Wikipedia



# What is Data Mining?

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- Data mining, a branch of computer science, is the process of extracting patterns from large data sets by combining methods from statistics and artificial intelligence with database management.
- Data mining is seen as an increasingly important tool by modern business to transform data into business intelligence giving an informational advantage.
- It is currently used in a wide range of profiling practices, such as marketing, surveillance, fraud detection, and scientific discovery.

- From Wikipedia



# 什麼是資料探勘？

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- 資料探勘，又譯為資料採礦或資料挖掘。它是資料庫知識發現中的一個步驟。
- 資料探勘一般是指從大量的資料中自動搜尋隱藏於其中的有著特殊關聯性的資訊之過程。
- 資料探勘通常與電腦科學有關，並通過統計、線上分析處理、情報檢索、機器學習、專家系統（依靠過去的經驗法則）和模式識別等諸多方法來實現上述目標。

- From Wikipedia



## 什麼是資料探勘？(續)

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- 「從資料中提取出有意義的、隱含的、過去未知的、可能有用的資訊。」 [1]
- 「一門從大量資料或者資料庫中提取有用資訊的科學。」 [2]

[1] W. Frawley, G. Piatetsky-Shapiro, and C. Matheus, "Knowledge Discovery in Databases: An Overview," AI Magazine: pp. 213-228, Fall 1992.

[2] D. Hand, H. Mannila, and P. Smyth, "Principles of Data Mining," MIT Press, Cambridge, MA, ISBN 0-262-08290-X, 2001.





Now.. Take a Break~

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# Course Overview

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- Instructor: Prof. Wei-Guang Teng
  - Office: Rm. 41301
  - Email: wgteng@mail.ncku.edu.tw
  - Phone#: +886-6-2757575 ext 63339
- Course website
  - <http://kdd.es.ncku.edu.tw/course/Seminar>
- No TA
- No Textbook



# Course Overview (cont'd)

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- Grading policy
  - 60% Class participation
  - 40% Term report
    - Technical report for undergraduate and M1 students
    - Paper submission for M2 and Ph.D. students



# What is Research?

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Research

Re-search



# How to Do the Research?

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- 如果抄襲一個人的作品，是剽竊；抄襲十個人的作品，是做研究工作；抄襲一百個人的作品就成為學者。

- 美國參議員葛倫名言



# Course Outline

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- W1: Course Overview
  - W2: Literature Survey
  - W3: Paper Evaluation
  - W4: A Quick Glance
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- Bonus: Find out the original statements