Summary: This paper briefly introduces the development history of graph theory, analyzes the advantages of graph theory, and presents the application of graph theory in the fields of life science, social network, network security, social science, system science, traffic signal research, Chinese research, and pattern recognition.

MSC:
05-03 History of combinatorics
05C90 Applications of graph theory
68T10 Pattern recognition, speech recognition
92D30 Epidemiology

Keywords:
graph theory; application; complex network