國 立 東 華 大 學 應 用 數 學 系

專 題 演 講

一、主講人：郭大衛教授

Department of Applied Mathematics, National Dong Hwa University

講　題：Defensive alliances and secure set of graphs

時　間：101 年 4 月 11 日(星期三)　10:30-11:15

地　點：理學院A324會議室

摘　要

Given a graph G, a *defensive alliance* of G is a set of vertices $S \subseteq V(G)$ satisfying the condition that for each $v \in S$, at least half of the vertices in the closed neighborhood of v are in S. A defensive alliance is called global if every vertex in $V(G) - S$ is adjacent to at least one member of the defensive alliance S. The global defensive alliance number of G, denoted $\gamma_a(G)$, is the minimum size around all the global defensive alliances of G. Given a graph G and a set $S \subseteq V(G)$, a function $A : S \to \mathcal{P}(V(G) - S)$ is called an *attack* on S (in G) if $A(u) \subseteq N(u) - S$ for all $u \in S$ and $A(u) \cap A(v) = \emptyset$ for all $u, v \in S$, $u \neq v$. And a function $D : S \to \mathcal{P}(S)$ is called a *defense* of S if $D(u) \subseteq N[u] \cap S$ for all $u \in S$ and $D(u) \cap D(v) = \emptyset$ for all $u, v \in S$, $u \neq v$. For a set S and an attack A on S, a defense of S is called a *defense of S corresponding to A* (in G) if $|D(u)| \geq |A(u)|$ for all $u \in S$. A nonempty set $S \subseteq V(G)$ is called a *secure set* of G if for all attack A on S, there exists a defense of S corresponding to A. A secure set S of G is called a *secure-dominating set* of G if every vertex in $V(G) - S$ is adjacent to at least one member of the secure set S. The cardinality of a minimum secure-dominating set of G is the called the *secure-domination number* of G and is denoted $\gamma^s(G)$. In this talk, I will introduce some results about these two problems.

二、主講人：曹振海教授

Department of Applied Mathematics, National Dong Hwa University

講　題：Can the many be smarter than the few?

Issues, questions and partial answers for ensemble learning in Boosting

時　間：101 年 4 月 11 日(星期三)　11:15-12:00

地　點：理學院 A324 會議室

摘　要

There are quite a few examples, say in biology, that the many can be smarter than the few. Interestingly, the counterexample are no lesser either. In the context of statistical machine learning, Boosting is one of the most important ensemble classifiers emerging in the last decades. In this talk, Boosting will be served as an example of "the many" . We will discuss issues and questions of this intriguing ensemble classifier and some partial answers will be provided.

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