이 의웅 / Euiwoong Lee

Capsule Introduction
SNU CSE Distinguished Lecture Series

Euiwoong first got interested in algorithms via programming contests in Korea; algorithms provide a perfect venue where creative mathematical ideas are transformed into logically complete programs that perform useful tasks. Like other kids into algorithms, he was amazed by the beauty of basic algorithmic techniques, including dynamic programming, divide and conquer, and other graph algorithms. As a college freshman, he was introduced to the field of approximation algorithms via his first research project, which was about computing an optimal pricing scheme for Internet Service Providers represented as a weighted graph. This was an eye-opener for him because computing the optimal solution was NP-hard (unlike most problems in contests), but there were more diverse ways to design polynomial-time algorithms that compute an approximately optimal solution.

After starting his Ph.D. study, he learned more about complexity theory which proves that even approximate optimization can be NP-hard beyond some threshold. These tools allowed him to completely resolve his first research problem after ten years after the first encounter. It was also when he realized that Algorithms and Complexity — the two pillars of the theory of computing — are really the two sides of the same coin; many algorithms discoveries happen by just writing down "why I can't prove hardness" and vice versa! While algorithms research (from computer science) has mainly focused on discrete algorithms, he recently got interested in the connection between discrete and continuous algorithms, which is the topic of this talk. He has truly enjoyed his slow but steady journey from basic algorithms to approximation algorithms to complexity theory and to continuous optimization, and hopes to keep continuing this journey in the future.

이 의웅, 2023년 5월