

TEACHER AND STUDENTS OF DEPT. OF ELECTRICAL ENGINEERING WON PATENTS FOR THEIR RESEARCHES

Dr. Wong Ching-chang, Chair of Dept. of Electrical Engineering, has led part-time faculty Dr. Lee Shih-an and Ph.D. student Liu Chih-cheng in two research projects, “Omnidirectional Mobile Control System” and “Accelerator for Particle Swarm Optimization,” which have won the patent respectively.

Liu Chih-cheng indicates that “Omnidirectional Mobile Control System” is originally developed to accelerate the robotic movement to win the competition of robot football. In the future, it can be practiced in various mobile platform, including wheelchair and practical robot. The conventional mobile equipment for robot can make it move smoothly in moving forward and backward; while in side movement, it has to make a big turn with complicate mobile procedures. With this invented device to calculate the thrust and component forces of the wheels, it can modify the inflexibility of traditional mobile equipment. It is also for this equipment that make them won the FIRA world Robot-soccer game.

“Particle Swarm Optimization” is an algorithm to simulate the evolution of bio-social movement, in which every individual undergoes probabilistic search for strategy according to one’s own past experience and group behavioral pattern. Dr. Lee Shih-an indicates that they develop the accelerator to practice the procedure in digital circuit, which would be 100 time quicker than it does in software calculation. In the future, it can be applied in any device in need of optimization, such as to locate the shortest path for a robot to go pass obstacles, or to spot a specific face among images.

Both projects are done by students of Dr. Wong Ching-chang. Dr. Wong remarks that since the opening of two courses, "Introduction to Applying Patent for Electrical Devices" and "Strategies for Receiving Patent for High-tech," students have been familiar with the related legal regulation about patenting. In the past, it were usually the professors who found the invention in student' s theses and encourage them to apply for patents; now, more and more students actively ask assistance of their professors in the application. The latest two successful cases "are the best practices of the courses" Dr. Wong added.

Liu Chih-cheng feels excited about his first patent. He indicates that he has looked into related researches in other universities and the school professors have provided full supports in equipment and encouragement to make further experiments. Liu recommends his younger schoolmates to "earnestly discuss research progress with teacher and keep one' s zeal in the researches." (~Chen Chi-szu)

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