

Department of Electrical & Computer Engineering Faculty of Engineering

Automatic Cargo Transportation



2013 & 2015 AVIC International UAV Grand Prixes

For the 2013 & 2015 International UAV Innovation Grand Prixes held in China, we



designed and implemented drones with realtime vision systems to autonomously transfer cargo between two moving platforms. In the competitions, four cargo buckets are initially placed inside four circles on one platform, respectively. They are

required to be transferred one by one onto the four circles on the other platform.







The NUS UAV Team won the first place in the final competitions in both 2013 & 2015 UAV Grand Prixes. Experiments and the great success of our team in the competitions verified the efficiency, accuracy, and robustness of the algorithms used in the vision system on ellipse detection, ellipse tracking, and single-circle-based position estimation.



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