

Route Optimization Methods for Unmanned Air Vehicle Launched from a Carrier

Halil Savuran and Murat Karakaya

Abstract—In this paper, we propose two route optimization methods for a carrier-launched Unmanned Air Vehicle (UAV). In a real life use case, the carrier keeps on moving on its own route as the UAV executes its own mission of visiting the targets dispersed on a geographical area. Due to carrier mobility, determining the UAV take-off and land-on locations with a route which minimizes the total tour length is a crucial research question and a practical challenge. In order to resolve this problem, we have designed one solution based on the Genetic Algorithm (GA) and another one using the Nearest Neighbor (NN) heuristic. We have observed the performance of the proposed approaches on some well-known TSP problems and compared the performance of both methods.

Index Terms—Carrier-Launched Unmanned Air Vehicle, Genetic Algorithm, Mobile Depot, Nearest Neighbor Heuristic, Route Plan Optimization, Traveling Salesman Problem, Vehicle Routing Problem.



Halil Savuran was born in Izmir, Turkey in 1980. He received the B.S. degree from Department of Computer Engineering at Turkish Air Force Academy, Istanbul, Turkey in 2002, worked as an IT systems manager, project officer and software developer / maintainer in various Air Force projects between 2002 and 2014. He has been doing his M.Sc. at Department of Software Engineering, Atilim University, Ankara, Turkey, since 2012. Currently he works as data handling systems analyst for NATO AWACS base in Geilenkirchen, Germany, on behalf of Turkish Air Force.



Murat Karakaya received the B.S.E.E. degree in 1991 from the Turkish Military Academy (KHO), Ankara, Turkey, and the M.S. and Ph. D. degrees in Computer Engineering from the Bilkent University, Ankara, Turkey in 2000 and 2008, respectively. From 1992 to 2000, he worked as an engineer at different units in the Turkish Land Forces (KKK), Ankara, Turkey. From 2000 to 2005, he worked as an instructor and software engineer at the Turkish Military Academy (KHO), Ankara, Turkey. Then, during 2005-2008 he worked as IT Project Manager in the North Atlantic Treaty Organization (NATO) Brussels, Belgium. From 2008 to 2012, he worked as an instructor and software engineer at the Turkish Military School of Electronics, Communications and Information Systems (MEBS) and Turkish Military Academy (KHO), Ankara, Turkey. He joined the faculty of Atilim University in 2012 and is currently an Asst. Professor in the department of Computer Engineering, Ankara, Turkey. His research interests are natural computing, sensor networks, peer-to-peer networks, route optimization, and communications protocol design.

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Halil Savuran is a graduate student at the Graduate School of Natural and Applied Sciences of Atilim University, Ankara, Turkey (e-mail: savuran.halil@student.atilim.edu.tr).

Murat Karakaya is an Assistant Professor with the Department of Computer Engineering of Atilim University, Ankara, Turkey (e-mail: murat.karakaya@atilim.edu.tr).