Registered Date: December 10, 2018

Seminar topic: A Projected Lloyd's Algorithm for Coverage Control Problems – אלגוריתם לויד המוטל עבור בעיות כיסוי

Lecturer: Yoav Palti –The Faculty of Aerospace Engineering, Technion. יואב פלטי – הפקולטה להנדסת אוירונאוטיקה וחלל, הטכניון

The Lecture is part of the requirements for the completion of M.Sc Degree in the faculty of Aerospace Engineering, under the supervision of Associate Professor Daniel Zelazo. ההרצאה היא חלק מהדרישות לקראת סיום תואר שני בפקולטה להנדסת אוירונאוטיקה וחלל, תחת הנחיית פרופ' משנה דניאל זלזו

Lecture Language: English

Lecturer biography: Completed B.Sc in Aerospace Engineering in the Technion in 2012. From January 2013 Yoav worked as an aeronautical algorithms engineer and since November 2015 as an aeronautical algorithms team leader. Yoav began his M.Sc studies in 2014 under the supervision of Associate Prof. Daniel Zelazo.

סיים את לימודי לתואר ראשון בהנדסת אוירונאוטיקה וחלל בטכניון בשנת 2012. מינואר 2013 יואב עבד כמהנדס אלגוריתמים אוירונאוטיים, ומנובמבר 2015 בראש צוות פיתוח אלגוריתמים אוירונאוטיים. יואב החל את לימודי התואר השני שלו בשנת 2014 תחת הנחיית פרופ' משנה דניאל זלזו.

Lecture Abstract:

This work presents a new approach for a coverage problem for large areas and a limited number of sensors. We consider the problem where there is a given area needed to be covered, however there are not enough sensors to provide complete coverage of the designated area at once. Furthermore, we require that at each stage of coverage, a sub-region in the area is constantly monitored.
The solution approach is a combination of two algorithms. the first one is Lloyd's algorithm, which is well known and used in this field, and the second one is a modified Lloyd's algorithm that we term the projected Lloyd's Algorithm.

The new algorithm, projected Lloyd's algorithm, is used for constraining the area partitioning to include the required sub-region in each partition. Another concept that was tested is combining the Lloyd's algorithm strategy with distance-based formation control, which resulted with stable controller. The strategies were tested using numerical simulations.