



הפקולטה להנדסת מכונות

הטכניון – מכון טכנולוגי לישראל

סמינריון

הנך מוזמנת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 17.08.16 (יג' באב, תשע"ו), בבניין דן-קאהן, קומה 0, אודיטוריום 1, 13:30.

ירצה: איגור ליפשיץ

מנחה: פרופ' ח ראובן כץ

מנחה שותף: ד"ר הקטור רוטשטיין, רפא"ל

על הנושא:

Development of a Navigation System for a Small Autonomous Underwater Vehicle

The seminar will be given in Hebrew

להלן תקציר ההרצאה:

Autonomous marine vessel technology has made substantial progress in recent years. One of the reasons for this progress is that modern battery technology with larger capacity has allowed a dramatic increase on the mission times that can be performed by relatively small Autonomous Underwater Vehicles (AUV's). Longer missions impose challenges to several AUV sub-systems, and in particular the navigation system is now required to maintain an accurate position over a larger operation area and period of time. The need to keep an accurate navigation solution is critical for several reasons, including maintaining the quality of the data collected during survey mission up to expectations, guaranteeing safe of operation, allowing the accurate placement of a payload on the seabed and facilitating the recovery of the vehicle once the mission is completed.

In the first part of this talk, the main sensors and methods in use for navigation AUVs are reviewed. The advantages and disadvantages of these methods are summarized and discussed.

Next, the requirements for the navigation system as derived from the overall requirements of the Technion AUV (TAUV) are discussed and the selected navigation method is described in details, including an accuracy evaluation using True Covariance Analysis. A detailed strapdown inertial navigation algorithm is presented and tested using Matlab simulations. Following an in-depth evaluation, the sensors that are apt to meet the navigation requirements are selected and tested. A summary of the tests is presented. Finally, a full specification of the TAUV navigation system, including fairly complete system installation and calibration method are presented together with a summary of the preliminary tests performed using the actual vehicle's sensors.

בברכה,

פרופ' ח ראובן כץ

מרכז הסמינרים