Date: June 27, 2022

Time: 10:10-11:00

Location: Alon Building 37, room 202

1.Speaker: Michal Rottem-Hovev

Title: 'THE LAB' Experience

Abstract: A new funding initiative, sponsored by The Science Ministry and BGU, to support applicable, practical research with commercial end use vision. 'THE LAB' is working closely with 'OAZIS' - VB and Accelerator - in 'Yazamut 360°' center. Come to find out more about 'THE LAB', 'OAZIS' and 'Yazamut 360°': What's in it for you, Why, How, When, Who – all the options and hopefully, all the answers, in this 20-minute talk.

Bio:

Michal Rottem-Hovev is currently running 'THE LAB' experience for 'Yazamut 360°'. Michal, a retired Ltc., has over 30 years' experience in project management - for the IAF, and research management to support technological & operational gaps, for the IDF in the IMOD/DDR&D. Michal holds a BSc in Math and an MBA from Tel Aviv University.

2.Speaker: Shimon Regev, PhD student

Title: Optimal Solutions with Multi-objective Considerations in a Non-cooperative Multi-agent Environment

Abstract:

Various issues related to decision-making, planning, and control of mobile autonomous systems raise the need to find optimal solutions. In many situations, multiple objective functions need to be considered, such as path or motion planning to be timesaving, energy-saving, and safe as much as possible. In addition, in some situations, a non-cooperative interaction between different autonomous agents is expected, such as vehicles interacting on the road, autonomous taxis or delivery drones planning routes considering competitors operating in the same arena, etc. The presented study deals with a theoretical and algorithmic approach to finding optimal solutions with multi-objective considerations in a non-cooperative multi-agent context. The theoretical approach is based on principles of game theory, where the problem is represented as a multi-objective game, based on the assumptions that the players are rational and that this is common knowledge among the players. Optimal solutions are found using co-evolutionary algorithms, having a population of solutions associated with each player. The solutions evolve according to the player's multiple objectives, considering the interaction with the other players' evolving solutions.

Bio:

Shimon Regev is a Ph.D. student in the Department of Mechanical Engineering at Ben-Gurion University of the Negev under the supervision of Dr. Shai Arogeti and Dr. Achiya Elyasaf (Department of Software and Information Systems Engineering, BGU). His doctoral research focuses on decision-making, planning, and control of mobile autonomous robots in a non-cooperative multi-agent environment, with multi-objective considerations. The research is

based on multi-objective game-theory using evolutionary computation, with applications to vehicles autonomy and smart transportation.