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Coordination of Swarmed Unmanned Ground Vehicles using Self Organization Mapping with Generic Algorithm[1] SHEKHAR PRADHAN, DeVry College of New York — The methodologies for path planning for individual UGVs have been well studied and modeled. The Simultaneous Localization and Mapping (SLAM) is an example of such study. However, there is no reliable method of communication among swarmed UGVs. The author along with other collaborators, Dr. Wei Cao of NASA Research Center and Dr. James Burghart of Cleveland State University, proposes a Master-slave approach for the coordinated management of UGVs using Neural Networks. SOM is used to work with GA to update the patterns of UGVs for coordination among themselves and with ground station(s). One (or more) UGV with advanced computational power and virtual link to other ground stations serves as the Master. SOM and GA reside on the Master as well as ground stations. All other UGVs behave as slaves. The individual UGVs conducts its own or grouped path planning. Using Matlab,, the prototype version of SOM and GA for swamed UGVs was simulated and tested with an advanced multi-UGV system. The author will present the results followed by the outlook for the future work.

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