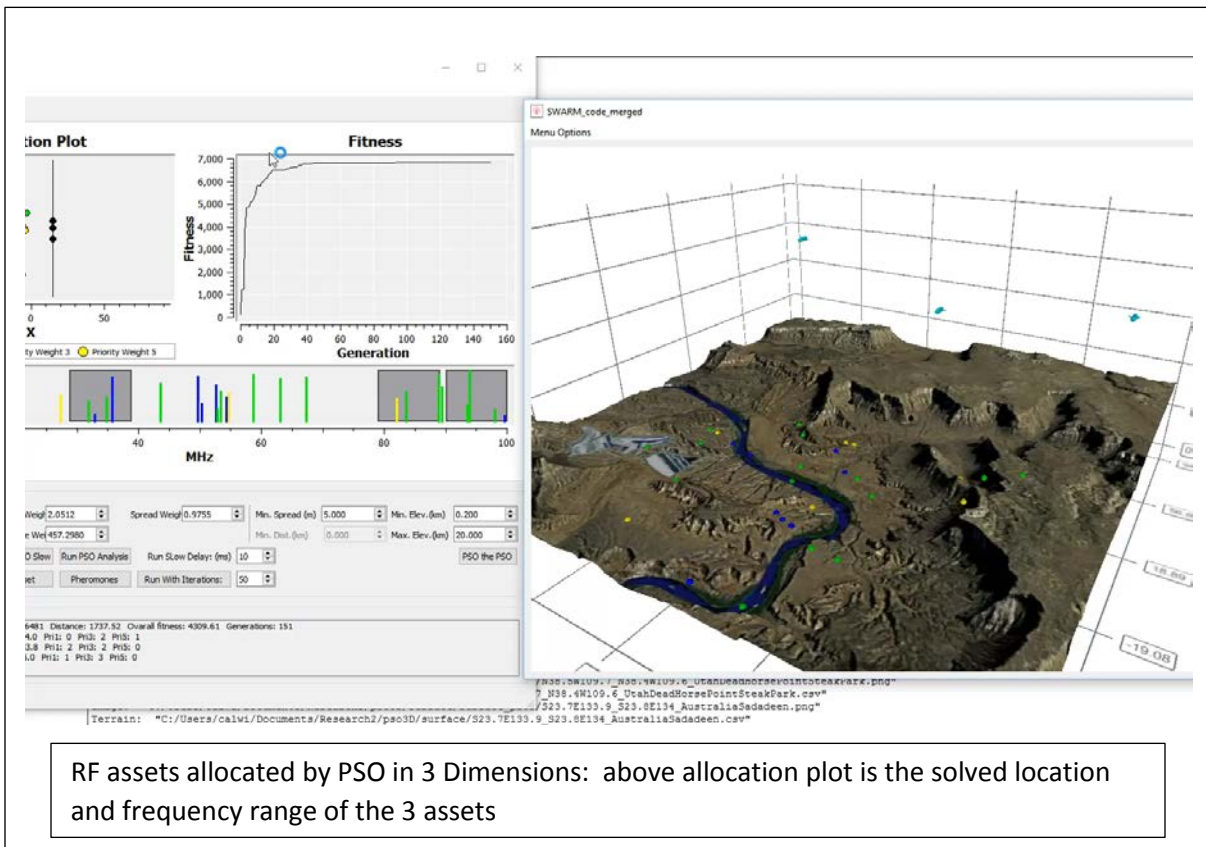


Title of Project: Particle Swarm Optimization (PSO) for Asset Allocation in a Dynamic Electronic Spectrum (*Funded by US Navy – CRANE 2016-18*)

Project Director: Lauren Christopher

Area: 3D spatial optimization, RF signals, parallel computing

Brief Description: PSO will be applied to dynamic electronic spectrum communications systems. This dynamic behavior includes practical asset movement restrictions (speed) and simulating probable movement of the transmitters (frequency movement or physical movement). Additionally, a 3D topographical terrain is used in the optimization framework. The research will be extended to include dynamic human-in-the-swarm definition of exclusion areas. Finally, it is expected that the complexity of the above changes will adversely affect the speed of the optimization, requiring a move to parallel computing architectures.



RF assets allocated by PSO in 3 Dimensions: above allocation plot is the solved location and frequency range of the 3 assets

Link: <http://www.engr.iupui.edu/~lauchris/Assets/AssetAllocationPSODemo.mp4>