**Project V**

**Title:** YIP: The Intelligent All-Electric Ship Power System

**Investigators:** Dr. G K Venayagamoorthy

**Funding Source:** Office of the Naval Research

**Project Description:** Computational intelligence (CI) techniques are proposed to develop robust and adaptive control system for the all-electric ship (AES) power system. Artificial immune systems, neural networks, adaptive critic designs and evolutionary swarm intelligence techniques are developed for control and reconfiguration of the AES power system during normal, fault, and fight and hurt operating conditions. The proposed plug-and-play control architecture is hierarchical and distributed in nature. The architecture allows fast self-healing of the AES power system after hurt or fault condition with the objective to maximize survivability and operability of the ship especially during critical missions. The integration of distributed generation sources and their optimal control and allocation to enhance this objective is also investigated.

**Project Publications (selected):**


