



# Self Introduction

**Alan J. Vayda, Ph.D.**  
**Senior Scientist**

**alan.vayda@soartech.com**  
**734-327-8000 x355**

Soar Workshop  
May 24, 2006

# Education

- B.S. Engineering Science - Penn State
  - Thesis: An Analysis of Some Factors Affecting the Computation of Far Field Acoustic Response from Near Field Data
- M.S. Electrical Engineering - Penn State
  - Thesis: Development of an Interactive Computer Assisted Instruction System
- Ph.D. Electrical Engineering - Purdue
  - Thesis: Reasoning with Geometric Constraints for Generic 3-D Object Recognition in Occluded Environments

# Employment

- ERIM (now Altarum)
  - Research institute
  - 7 years
- Nonlinear Dynamics/NovoDynamics
  - Start-up
  - 8 years
- Soar Technology
  - 7 months

## Pre-SoarTech Experience

- Pattern Recognition (Recursive Partitioning)
- Data Analysis and Visualization
- Information Retrieval
- Optical Character Recognition (OCR)
- Video Tracking
- Robot Vision
- Contextual Reasoning
- Geometric Reasoning
- Large Scale Heterogeneous Data Management
- Web-Based Systems
- Materials Discovery (Combinatorial Chemistry)

# Soar Tech Projects

- Real-time Adversarial Intelligence and Decision-making (RAID)
  - Predicting opponent course of action in an urban environment
- Intelligence Analysis Support (Tangram)
  - Soar agent composes sequences of graph algorithms to achieve desired outcome based on graph and algorithm features specified in an Ontology
- Biologically-Inspired Cognitive Architectures (BICA)
  - Integration of biologically-based algorithms into Soar and considering changes to Soar architecture

# Interests

- Predictive Modeling
- Sensing and Perception
- Robotics and Unmanned Vehicles
- Uncertainty and Evidential Reasoning
- Contextual Reasoning
- Multi-Agent Teams
- Soar (in concert with all of the above)