

Course D: *Environmental Considerations for Pattern of Life Behaviors in Training*

Course Level: Intermediate

Instructor: Dave McKeown, TerraSim, Inc.

COURSE CONTENT: This course will introduce the concepts behind how AI entities interact with the simulation environment to create intelligent behaviors without requiring detailed pre-determined scripting and deterministic control. The development of fully autonomous “pattern of life” (POL) has not been achieved. This course will explore the scope of the problem, current partial solutions making up the state of the art, and promising directions to achieving POL.

- Introduction to constructive and serious games for simulation and training
- The traditional structure of semi-automated forces (SAF)
- Limitations of force on force simulations in urban environments
- Operational definitions of pattern of life with examples.
- System level organization between the environment and entity behaviors
- Levels of autonomy within entity behaviors
- Survey of university research in autonomous behaviors
- Commercial middleware to support autonomous behaviors
- Future requirements and commercial directions

The course will utilize both lecture and group discussion with a goal to help participants understand the state of the art in entity behaviors for modeling, simulation, and training. Interesting visual aids will be employed. This is a BYOB lecture :-).

WHO SHOULD ATTEND: Anyone involved in modeling and simulation for training involving constructive and serious game simulations with an emphasis on system engineering and development, and project management.

KNOWLEDGE & SKILLS TO BE ATTAINED: Participants will gain a good understanding of the structure of entity control and behaviors within constructive and serious game runtimes. Various commercial and government runtime systems will be surveyed

TUTOR'S VITA: **David M. McKeown** has been involved in environmental issues for defense modeling and simulation since the early '90s, beginning with his involvement with the DARPA SIMNET program. He has actively participated in technical conferences for IEEE, the IMAGE Society, ISPRS and SPIE. He gave a well-received tutorial on environmental considerations for pattern of life (POL) at GameTech 2012. He is President of TerraSim, Inc and an Adjunct Research Professor in Computer Science at Carnegie Mellon University in Pittsburgh.