Proposed Graduate Degree Programs in Modeling and Simulation at UAHuntsville
M&S definitions

- Modeling and simulation, as terms
  - Model; a representation of something else
  - Simulation; execution of a model over time

- Modeling and simulation, as a discipline
  - Modeling methods
  - Applications & use
  - Theory
  - Verification & validation
  - Human-system interaction
  - Architectures & implementation

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Engineering design

Combat analysis

Flight training
Existing M&S degree programs

- University of Central Florida (Orlando FL)
  - Program started 2002
  - Interdisciplinary (multiple colleges, departments)
  - Current enrollment 120
  - Graduates per year: 30 M.S., 8 Ph.D.

- Old Dominion University (Norfolk VA)
  - Program started 1998
  - Interdisciplinary (multiple colleges, departments)
  - Current enrollment 131
  - Graduates per year: 20 M.S., 4 Ph.D.
Proposed UAHuntsville M&S degree program

- M.S. and Ph.D. in Modeling & Simulation
- Requirements
  - M.S. 24 course hours + thesis, or 30 course hours
  - Ph.D. 54 course hours (24 beyond M.S.) + dissertation
- Program courses
  - Interdisciplinary, courses from multiple departments
  - Required core courses plus selectable electives
  - Most courses already in UAHuntsville catalog
- New courses to be added
  - Introduction to Modeling and Simulation
  - Simulation Project Management
  - Continuous System Simulation
Educational objectives

- M&S M.S. will prepare graduates to be …
  - M&S practitioners in industry and government
  - Research staff in industry and government
  - Research staff in academic research labs
  - M&S Ph.D. student
- M&S Ph.D. will prepare graduates to be …
  - Research leaders in industry and government
  - Research leaders in academic research labs
  - Academic faculty in M&S
Departments and faculty involved

- **Key departments**
  - Computer Science
  - ISEEM
- **Supporting departments**
  - Mathematics
  - Physics
  - Psychology
- **Selected faculty (alphabetical)**
  - W. Colley, Physics/CMSA
  - P. Componation, ISEEM
  - G. Cox, CS
  - J. Li, Math
  - A. Morris, Psych/CMSA
  - M. Petty, CS/ISEEM/CMSA
  - J. Swain, ISEEM
  - G. Zank, Physics/CSPAR
Community interest in M&S degree program

- Explicit interest from government personnel
  - U.S. Army SED, U.S. Army SSDD
  - NASA MSFC
- Explicit interest from industry personnel
  - SAIC, Boeing, AEgis, Dynetics
  - Alabama Modeling & Simulation Council
- Grants to support M&S program development
  - SAIC
  - Boeing
- Projected enrollments
  - M.S., 45 enrolled, 20 graduates per year
  - Ph.D., 25 enrolled, 5 graduates per year
Related UAHuntsville programs

- **ISEEM**
  - M.S.E. with concentration in Modeling & Simulation
  - Complementary to M&S degree program
  - Serve different student markets

- **Continuing Education**
  - Certificate program in modeling and simulation
  - Synergistic with M&S degree program
  - Cont Ed students may continue into degree program
Possible collaborations

• Collaboration modes
  ▪ Distance learning offerings
  ▪ Exchange of courses
  ▪ Visiting faculty

• Possible statewide collaborators
  ▪ University of Alabama at Birmingham
  ▪ University of Alabama
  ▪ Auburn University

• Other national collaborators
  ▪ University of Central Florida
  ▪ Old Dominion University
  ▪ Naval Postgraduate School
Questions?

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