Data Engineering ThinkTank!: Calit2 User Facility for Advanced Computing

Data Engineering ThinkTank! People
- Dr. Charless Fowlkes (Faculty Director)
- Dr. Richard P. Donovan (Lab Director)
- Dr. Edgar Olivares-Manas (Simulation)
- Mr. Yibo Wang (sys Admin)
- Mr. Hanwen Ye (sys Admin)
- Mr. Chris Battista (sys Admin)

Mission Statement
Connecting the thermodynamics of Information Engines and Heat Engines to Investigate the relationship between Information Mechanics and Newtonian Mechanics

Contact
Richard P. Donovan
4-1977
rpdonova@uci.edu
Current Activities
Example Projects @ DETT

• Cognitive Reduced Order Models for Smart Manufacturing: Light weight (code and resource size), hybrid (physics and data) simulation models (Prof. GP Li, PI)

• Micromechanics of Thermal Cycling in Shotcrete (Prof. Lihzi Sun, PI):
  C-T Scans of shotcrete processed to create FEA Model for simulations

• Reducing Disparity in Disaster Recovery by Modeling Social Vulnerabilities (Prof. Maura Allaire, PI): Analyzing terabytes of data on weekly consumer purchases (tracked through supermarket scanner database) to determine disaster impacts, resilience and create integrated risk analysis.
Possible areas of collaboration with other groups

- Locally Scalable High Performance Computing Infrastructure
  - High performance multicore graphics workstations (Windows or UNIX)
  - Ansys, TensorFlow, others
  - Up to 80 CPU cores, 45 GPUs

- Access to “X”-scale high performance computing over fiber optic network connecting:
  - 400-500 32 bit GPUs via Nautilus Network (Chase CI, Larry Smarr PI)
  - Kuebernetes, Kepler

- Collaboration Space (a Tank) for Thinking about Data Engineering exploration
  - Seminar/Webinar space for research groups collocated with HPC resources
  - High Speed connection to the Pacific Research Platform
  - Hosting research groups (e.g. Center for Artificial Intelligence in Diagnostic Medicine)