At NPS, faculty members focus on education and research conducted specifically to increase the combat effectiveness of commissioned officers.

In my role, I am primarily responsible for conducting research and publishing results that directly support the needs and goals of the Navy, as well as the application of that research directly into the NPS curriculum to ensure that the education of NPS students remains relevant and current.

My work has focused on the integration of system architecture products with system analysis techniques, specifically the development of operational and combat models, through model-based systems engineering.

That research approach, termed Capabilities Focused Model-Based Systems Engineering (CF-MBSE), is conducted in direct support of broader Navy research projects.

One of my primary goals is to integrate my research experiences with student thesis research, please click on the links below to find out more about my research and teaching interests, as well as to review past and current projects and explore thesis opportunities.

---

**Capabilities Focused Model-Based Systems Engineering:**

**Research & Applications**

1. **System Definition**
   - Initial system requirements are established and analyzed.
   - System architecture models created.

2. **System Modeling**
   - Baseline modeling: Detailed models of alternative system configurations are developed to represent an initial system configuration.
   - Experimental design: A broad set of input variations are used to define operational behaviors.
   - Simulation modeling: Each system configuration is evaluated in response to input variations.

3. **System Analysis**
   - Model analysis: Statistical analysis tools and techniques are used to identify the variables and interactions that have the most significant impact on system performance.
   - Dynamic decision support: Statistical post-analysis and decision support tools are used.
   - Reporting & documentation: Recommended system configurations and design decisions are summarized in written reports and presented (including model codes and analysis results).

---

**Capabilities Focused Model-Based Systems Engineering:**

**Academic Foundations**