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# Autonomous systems adoption challenges and requirements management solutions

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Monterey, California: Naval Postgraduate School

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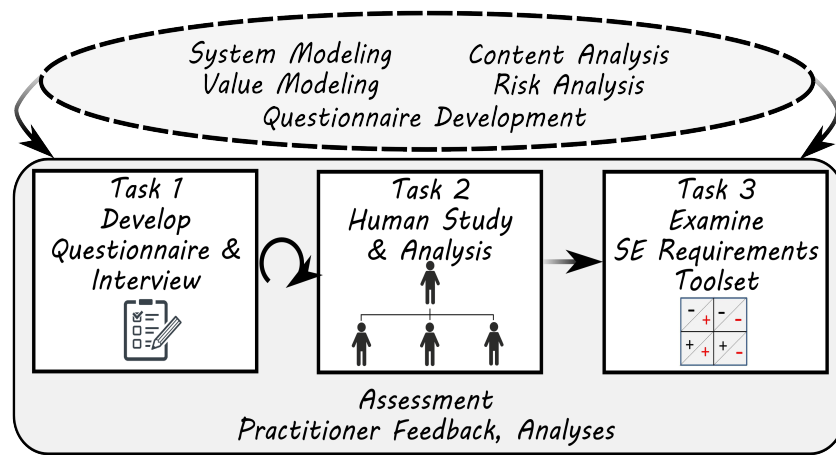
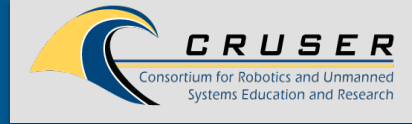


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# Autonomous Systems Adoption Challenges and Requirements Management Solutions



Proposed Research Tasks

- Develop a novel questionnaire and semi-structured interview that solicits preference and beliefs on perceived challenges of the adoption of autonomous system using a six step process.
- Conduct the human study on NPS resident students, warfighters, DOD engineers, and DOD contractors that are in the defense acquisition phases of “Engineering and Manufacturing” and “Production and Deployment”.
- Analyze evidence using content analysis and descriptive statistics. Examine using human study evidence and systems engineering approaches of value modeling, game theory, and risk analysis.
- Develop a toolset to aid in generation and management of requirements specifically for autonomous systems based on research findings.

- Autonomous systems have inherent challenges with traditional systems engineering requirements generation and management due to the way warfighters and DOD acquiring/constructing organizations perceive autonomous systems. This may lead to issues with autonomous systems adoption by warfighters and DOD acquiring/constructing organizations.
- **Deliverables:** Technical report and/or one or more journal manuscripts discussing the human study and the use of the toolset for aiding requirements generation and management developed from this research.
- **Deliverables:** Reusable questionnaire and semi-structured interview on challenges in autonomy adoption; Evidence of challenges; Toolset of systems engineering approaches to investigate and aid in requirements generation & management. Toolset will be directly applicable to DON systems engineers.

- It is important to identify psychological (internally held attitudes) challenges to the adoption of autonomous systems in the DOD and acceptance by the warfighter using psychology and engineering risk management approaches.
- Systems engineers need actionable information about how warfighters and others in the DOD perceive autonomous systems to integrate that information in the requirements phase of the systems engineering process.
- Successful adoption of autonomous systems can make the warfighter more effective, reduce potential risks to the warfighter, and potentially reduce mission costs. Addressing issues as early as possible in the system design cycle reduces costs and speeds fielding of systems.
- Supports the “Organizational Change and Adoption” concept from the 2017 Warfare Innovation Continuum Workshop.



FY19 Call for Proposals

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