CyberWarfare: Offensive and Defensive Software Technologies (Introduction)

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This relatively new Minitrack – CyberWarfare: Offensive and Defensive Software Technologies – is intended to bring together technical and non-technical cyberwarfare researchers, academics, and practitioners in related fields to discuss the mechanics and implications of offensive and defensive cyberwarfare activities. While the breadth of this field is extensive, the focus topics for the inaugural offering of this minitrack include offensive and defensive technologies and capabilities, impacts of cyberwarfare, information warfare, collateral damage from related activities, as well as educational, legal, policy and ethical issues associated with the controversial topic.

As these topics become increasingly mainstream, it is important that forums evolve that allow researchers to discuss the technologies and associated implications in this rapidly advancing field. This year there are two papers and an informal panel related to this topic, which should promote discussion among the participants.

In our first paper, *Asset Criticality in Mission Reconfigurable Cyber Systems and its Contribution to Key Cyber Terrain*, Peyton Price, Nicholas Leyba, Mark Gondree, Zachary Staples, and Thomas Parker begin by discussing the common operational picture that has been used for military situational awareness for many years. They use this foundation as a means to present and discuss the need for similar doctrine and tools in the cyberspace domain. This interesting gap analysis is discussed in the context of mission- and operationally-based questions. They reach some insightful conclusions regarding the affect of changes in the operational use of a system under different missions that is likely to lead to good conversation and their suggested future research directions provides a solid foundation for continued research and discussion in this area.

In our second paper, *Reducing Complex Visualizations for Analysis*, Lucas McDaniel and Kara Nance discuss some of the challenges associated with complex visualizations, especially when utilized by an analyst apply abductive reasoning to discover new information. Once the human analysis (a limited resource) has identified an anomalous pattern or condition in the datasets, how can this information used to construct an algorithm that allows for automated detection of other occurrences of the same, or similar, patterns? They present a method of breaking down complex visualizations into smaller components to facilitate computerized analysis of the analyst-identified patterns or anomalies in the data. This passes the burden of future processing from the analyst to the computer.

To support the future growth of this relatively new minitrack in the Software Technology Track, the chairs will be facilitating an informal panel to discuss some of the issues associated with this important topic. This informal panel will have guided questions and will include the audience to promote discussion and guide the evolution of the minitrack for future years.

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