Introduction

The topic of network science, which is generally defined as “the study of network representations of physical, biological, and social phenomena leading to predictive models of these phenomena,” emanated from U.S. Department of Defense (DoD) interests in network-centric warfare in the early 1990s. In an effort to provide foundational rigor for these emerging military operational concepts, DoD convened studies through the National Research Council (NRC) and the Board on Army Science and Technology (BAST) to provide a framework for the topic of network science, and to outline the research and funding needed to advance it.

Today, there are several notable research programs in the area of network science, including: the Network Science Center at the U.S. Military Academy, the Network and Information Science International Technology Alliance, a consortium of industry and academia led by Army Research Laboratory (ARL) and the UK Ministry of Defense, and the Network Science Collaborative Technology Alliance (NS CTA).

The Network Science Collaborative Technology Alliance (NS CTA, see http://www.ns-cta.org/ns-cta-blog/) is a collaborative research alliance between the US Army Research Laboratory (ARL), other government researchers, and a Consortium of four research centers: an Academic Research Center (ARC) focused on social/cognitive networks (SCNARC), an ARC focused on information networks (INARC), an ARC focused on communications networks (the CNARC), and an Interdisciplinary Research Center (the IRC) focused on interdisciplinary research and technology transition. The Alliance unites research across organizations, technical disciplines, and research areas to address the critical technical challenges of the Army and Network-Centric Warfare (NCW). Its purpose is to perform foundational cross-cutting research on network science, resulting in greatly enhanced human performance for network-enabled warfare and in greatly enhanced speed and precision for complex military operations.

This special issue is directed at network science research results that create new modeling methodologies, or simulation approaches such as those that utilize event-driven, process-
oriented, federated HLA/RTI, or agent based frameworks. Examples include, but are not limited to:

- Modeling Data Delivery in Dynamic, Heterogeneous, Mobile Networks
- Characterizing the Increase of Quality of Information due to Networking Paradigms
- QoI (Quality of Information) Networking Approaches
- Distributed and Real Time Data Integration and Information Fusion
- Scalable, Human-Centric Information Network Systems
- Knowledge Discovery in Information Networks
- Networks in Organizations
- Adversary Social Networks: Detection and Evolution
- The Cognitive Social Science of Net-Centric Interactions
- Methods for Understanding Composite Networks
- Characterizing the Interdependencies Among Military Network Components
- Experimentation with Composite Networks
- Trust Models and Metrics
- Understanding the Interactions between Network Characteristics and Trust
- Fundamental Paradigms for Enhancing Trust
- Ontology and Shared Metrics for Composite Military Networks
- Mathematical Modeling of Composite Networks
- Dynamics and Evolution of Composite Networks
- Modeling Mobility and its Impact on Composite Networks

**Instructions for manuscript preparation**

For manuscript formatting and other guidelines, please visit the Author Guidelines for JDMS ([http://www.scs.org/pubs/jdms/jdmsguidelines.html](http://www.scs.org/pubs/jdms/jdmsguidelines.html)).

Note: Manuscripts must not have been previously published or in review for publication elsewhere. Each submitted manuscript must include title, names, authors’ affiliations, postal and e-mail addresses, and a list of keywords. For multiple author submissions, please identify the corresponding author.

**Due dates**

- Full papers due: 1 May 2011
- Reviews returned to authors: 1 July 2011
- Revised papers due: 1 September 2011
Notification of acceptance  1 October 2011
Final (revised) papers due  1 December 2011
Publication expected   Spring/Summer 2012

Submissions for full paper review

All manuscripts must be submitted electronically through the paper submission system to the JDMS Manuscript Submission System (http://mc.manuscriptcentral.com/scs/jdms). Manuscripts must be formatted in single-column pdf format, double-spaced, and use 12pt fonts. In the title page, author(s) must specifically mark that the paper is intended for this special issue as follows: "Network Science".

Final paper submissions

Each final submission must be prepared based on JDMS requirements (see the Author Guidelines for JDMS page).

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