INARC Wikipedia Article

Information Network Academic Research Center

About INARC

The Information Network Academic Research Center (INARC) is an academic research center of Network Science Collaborative Technology Alliance (NS CTA), supported by US Army Research Lab (ARL), collaborating with three other research centers: Social and Cognitive Network Academic Research Center (SCNARC), Communications Network Academic Research Center (CNARC), and an Interdisciplinary Research Center (IRC). INARC brings together a team of world-class researchers on information network research, with UIUC as the principal member, UCSB, IBM, and CUNY as general members, and Carnegie Mellon University, University of Michigan, Northwestern University, and Palo Alto Research Center as sub-awardees. The center collaborates closely on research with other research centers of Network Science CTA.

The primary goal of the INARC is to develop the information network technologies to improve the capabilities of the U.S. Army and provide users with reliable and actionable intelligence across the full spectrum of Network-Centric Operations. In particular, a key goal is to develop fundamental understanding of phenomena occurring in information networks as they interact with communication and social/cognitive networks. Another important goal of the INARC is to develop theory and approaches for controlling the highly distributed process in information networks, especially based on local information, in a manner that can lead to (global) mission success.

The INARC will systematically develop the foundations, methodologies, algorithms, and implementations needed for effective, scalable, hierarchical, and most importantly, dynamic and resilient information networks for military applications. The INARC will address the research challenges inherent in complex, mobile, self-forming, and rapidly-changing information networks such as those utilized on the battlefield by the Army and its soldiers, and perform foundational cross-cutting research on information network science, resulting in greatly enhanced human performance for network-enabled warfare and in greatly enhanced speed and precision for complex military operations.

Greater understanding is needed of what constitutes information and how information is processed, controlled and shared in complex information networks (and how it should be made better). Elements of information arise and change in neither completely deterministic nor completely random fashions; the networks are not stationary, homogeneous or isotropic; and they have varying topologies. In addition, complex and potentially harmful feedback loops may occur. Addressing information network challenges in this environment requires a multi-disciplinary approach that breaks new ground and builds on existing research in communication, information, and social and cognitive research.

The center will focus on the most critical issues and consists of three projects: Distributed and Real Time Data Integration and Information Fusion; Scalable, Human-Centric Information Network System; and Knowledge Discovery in Information Networks.

Participating Institutions in the INARC

- Univ. of Illinois at Urbana-Champaign (Principal Member). Principal investigators: Tarek Abdelzaher, Jiawei Han (Center director), Tomas Huang, and Dan Roth.
- City Univ. of New York (General Member). Principal investigators: Amotz Barnoy, Theodore Brown, and Heng Ji.
- IBM (General Member). Principal investigators: Charu Aggarwal, Arun Iyengar, Tasos Kementsetisidis, Hui Lei, Kavitha Srinivas, and Mudhakar Srinatsa.
- Univ. of California at Santa Barbara (General Member). Principal investigators: Tobias Hollerber, B. S. Manjunath, Ambuj Singh, and XiFeng Yan.
- Northwestern (Sub-awardee). Principal investigators: Noshir Contractor.
- Palo Alto Research Center (PARC) (Sub-awardee). Principal investigators: Peter Pirolli and Bongwon Suh.
- Univ. of Michigan (Sub-awardee). Principal investigators: Lada Adamic.