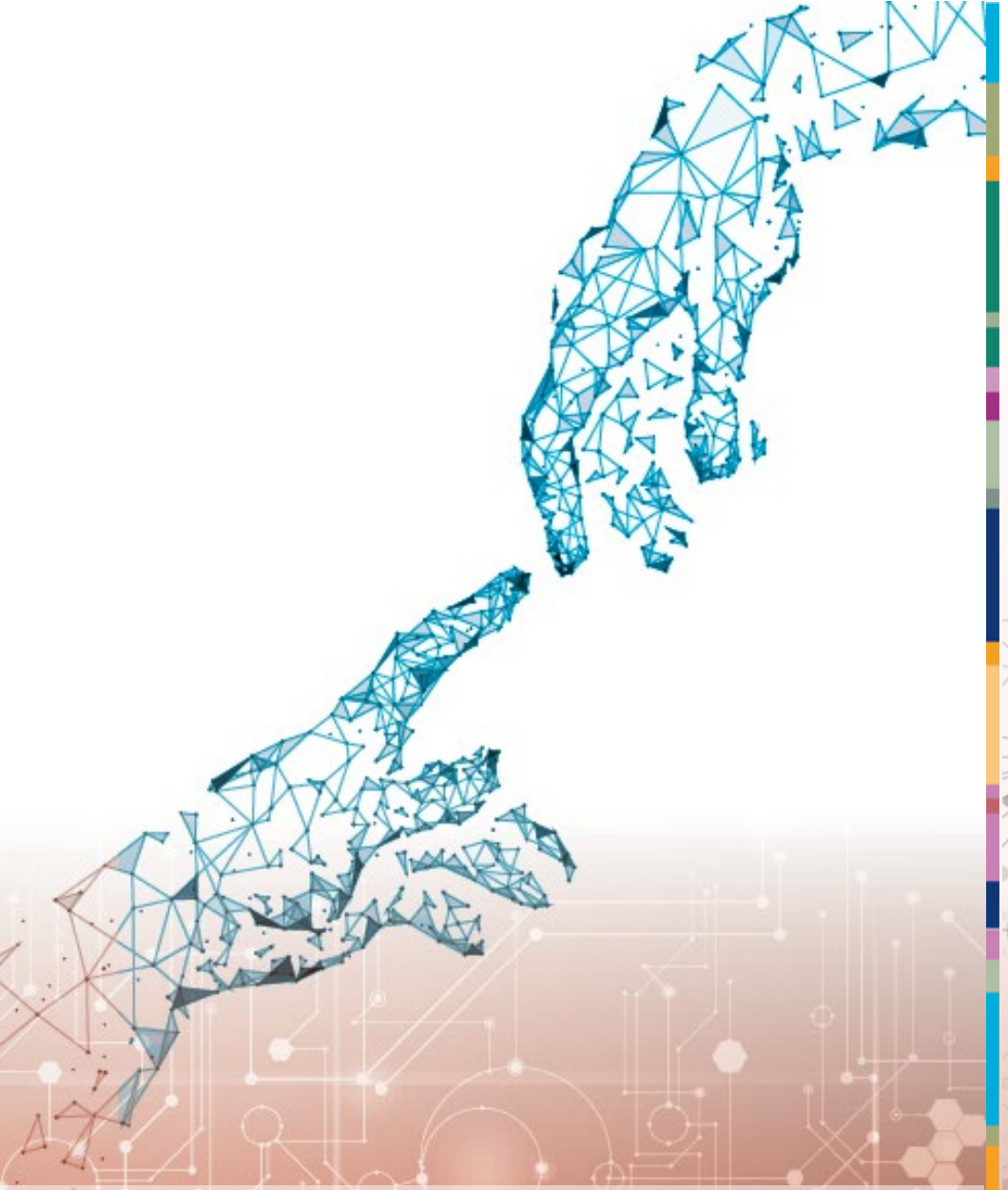


Research Spotlight Forum

3.10.2020 | Social Sciences & Decision Making

Social Sciences & Decision Making at Sandia National Laboratories

Caren Wenner, Ph.D.

Statistics and Human Systems

Sandia National Laboratories
Program Overview

Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc. for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2020-3027 PE

SANDIA PLAYS A CRITICAL ROLE IN THE NATIONAL CONVERSATION THAT LOOKS AT GLOBAL SECURITY 20-30 YEARS AHEAD

The global security environment is changing. Now more than ever, the U.S. must prepare for technology surprise.

FUTURE DYNAMICS

- Technological convergence & individual empowerment
- Accelerated information diffusion & decision-making
- Climate change vulnerabilities & constrained resources
- Polycentric world with new actors challenging institutions
- Continuing super-power dynamic with emerging frontiers of engagement

Sandia has 7 Labs-level Strategic Priorities to prepare for future dynamics:

1. **DELIVER** on today's commitments
2. **MAINTAIN** an agile and effective nuclear deterrent
3. **ANTICIPATE** threats to national security through intelligence science
4. **DEVELOP** transformational technical solutions to detect threats to national security
5. **INVENT** and demonstrate pathfinder systems to address threats
6. **DEPLOY** outstanding engineering, science, and technology to our missions
7. **UNLEASH** the power of Sandia

WHAT ARE SOCIAL SCIENCES?

Branches of science that deal with the institutions and functioning of human society and with the interpersonal relationships of individuals as members of society.

(Miriam-Webster)

The social sciences encompass a range of disciplines that examine and explain human functioning on a variety of interlocking levels, ranging from neural foundations to individual behavior, group processes and the functioning of entire societies.

(European Science Foundation)

SANDIA HAS A MULTI- AND INTER- DISCIPLINARY APPROACH

We take a broad view of the social sciences …..

- Anthropology
- Economics
- History
- Linguistics
- Political Science
- Psychology
- Sociology
- Demography
- Human Factors
- Cognitive Science
- Human Computer Interaction/User Experience
- Neuroscience
- Communications
- Education
- Environmental Sciences
- Social Statistics and Informatics

And partner with and leverage our engineers, physicists, computer scientists, and other domain experts

Note: list of disciplines is not exhaustive

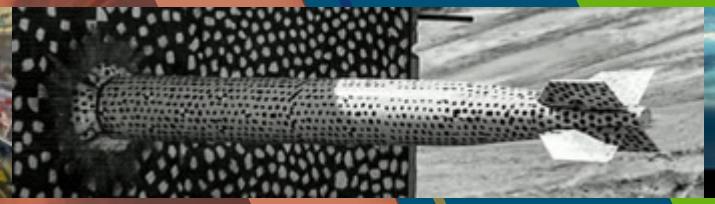
SANDIA HAS FIVE MAJOR PROGRAM PORTFOLIOS

WHAT DOES SOCIAL SCIENCES AND DECISION MAKING RESEARCH LOOK LIKE AT SANDIA?

Understanding, and designing for, the human in national security domains

- Evaluating and designing effective human – machine interfaces
- Leveraging data to inform decision making
- Understanding technical and human system challenges in tandem to enable effective crisis decisions
- Improving human performance (efficiency, effectiveness, safety, security, etc.)
- Human performance modeling
- Economic modeling (e.g., how the economy is affected by infrastructure disruptions)
- Testing and evaluating human performance
- Peace Engineering

- Others…..

Sandia National Laboratories

Exceptional service in the national interest