The Jason Group

Elite weapons application scientists, developing cutting-edge science weapons for DARPA, and operating under the cover of the Mitre Corporation.

What they are doing is developing genetics for war and operating in relative secrecy.

They don't deserve to exist. The money which is spent on this project could be put to use in a much more productive manner.

Human Genome Project

October 7, 1997

The MITRE Corporation

JASON Program Office

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JSR-97-315

3.1.1 The diversity of quality requirements

3.1.2 Accuracy required for assembly

3.2 Verification protocols

3.2.1 Restriction enzyme verification of sequence accuracy

3.2.2 Hybridization arrays for sequence verification

3.2.3 Implementation of verification protocols

3.3 Assessing and improving present techniques

3.3.1 A systems approach is required

3.3.2 Gold standards for measuring sequence accuracy

3.3.3 Quality issues pertaining to sequencing templates

4. GENOME INFORMATICS

4.1 Introduction

4.2 Databases

4.2.1 User issues

4.2.2 Modularity and standards

4.2.3 Scaling and storage

4.2.4 Archiving raw data

4.2.5 Measures of success

4.3 Sociological issues

https://www.bibliotecapleyades.net/sociopolitica/shadow/s46.htm

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https://military-history.fandom.com/wiki/JASON_(advisory_group)

JASON (advisory group)

JASON is an independent group of scientists which advises the United States government on matters of science and technology. The group was first created as a way to get a younger generation of scientists—that is, not the older Los Alamos and MIT Radiation Laboratory alumni—involved in advising the government. It was established in 1960 and has somewhere between 30 and 60 members.

Activities

For administrative purposes, JASON's activities are run through the MITRE Corporation, a non-profit corporation in McLean, Virginia, which contracts with the Defense Department.

JASON typically performs most of its work during an annual summer study. Its sponsors include the Department of Defense (frequently DARPA and the United States Navy), the Department of Energy, and the U.S. Intelligence Community. Most of the resulting JASON reports are classified.

The name "JASON" is sometimes explained as an acronym, standing either for "July August September October November", the months in which the group would typically meet; or, tongue in cheek, for "Junior Achiever, Somewhat Older Now". However, neither explanation is correct; in fact, the name is not an acronym at all. It is a reference to Jason, a character from Greek mythology. The wife of one of the founders (Mildred Goldberger) thought the name given by the defense department, Project Sunrise, was unimaginative and suggested the group be named for a hero and his search.

JASON studies have included a now-mothballed system for communicating with submarines using extremely long radio waves (Project Seafarer, Project Sanguine), an astronomical technique for overcoming the atmosphere's distortion (adaptive optics), the many problems of missile defense, technologies for verifying compliance with treaties banning nuclear tests, a 1982 report predicting CO2-driven global warming, and a system of computer-linked sensors developed during the Vietnam War which became the precursor to the modern electronic battlefield.

Membership

JASON members all have security clearances, and they include physicists, biologists, chemists, oceanographers, mathematicians, and computer scientists.[1] They are selected for their scientific brilliance, and, over the years, have included eleven Nobel Prize laureates and several dozen members of the United States National Academy of Sciences.[2]

Recent history

In 2002, DARPA decided to cut its ties with JASON. DARPA had not only been one of JASON's primary sponsors, it was also the channel through which JASON received funding from other sponsors. DARPA's decision came after JASON's refusal to allow DARPA to select three new JASON members. Since JASON's inception, new members have always been selected by its existing members. After much negotiation and letter-writing—including a letter by Congressman Rush Holt of New Jersey[3]—funding was subsequently secured from an office higher in the defense hierarchy, the office of the Director, Defense Research & Engineering, name changed to Assistant Secretary of Defense (Research & Engineering) (ASD (R&E)) in 2011.[4]

Research

JASON studies include:

Compressive Sensing for DoD Sensor Systems, (November 2012, JSR-12-104)

Impacts of Severe Space Weather on the Electric Grid, (November 2011, JSR-11-320)

The $100 Genome: Implications for the DoD. (November 2010, JSR-10-100)

Science of Cyber-Security, (November 2010, JSR-10-102)

High Frequency Gravitational Waves, (October 2008; JSR-08-506)

Human Performance, (March 2008; JSR-07-625)

Wind Farms and Radar, (January 2008; JSR-08-125)

Navy Ship Underwater Shock Prediction and Testing Capability Study, (October 2007; JSR-07-200)

Reliable Replacement Warhead Executive Summary, (September 2007; JSR-07-336E)

Pit Lifetime, (January 2007; JSR-06-335)

DAHRT, (October 2006; JSR-06-330)

Engineering Microorganisms for Energy Production, (June 2006; JSR-05-300)

Reducing DoD Fossil-Fuel Dependence, (September 2006; JSR-06-135)

NIF Ignition (June 2005; JSR-05-340)

Tactical Infrasound (May 2005; JSR-03-520)

Quantifications of Margins and Uncertainties, (March 2005; JSR-04-330)

High Performance Biocomputation (March 2005; JSR-04-300)

Sensors to Support the Soldier (Feb. 2005; JSR-04-210)

Horizontal Integration: Broader Access Models for Realizing Information Dominance (December 2004; JSR-04-312)

Active Sonar Waveform, (June 2004; JSR-03-200)

The Computational Challenges of Medical Imaging, (February 2004; JSR-03-300)

Requirements for ASCI, (October 2003; JSR-03-330)

Portable Energy for the Dismounted Soldier, (June 2003; JSR-02-135)

Turbulent Boundary Layer Drag Reduction, (May 2003; JSR-01-135)

High Power Lasers, (April 2003; JSR-02-224)

Biodetection Architectures, (February 2003; JSR-02-330)

Opportunities at the Intersection of Nanoscience, Biology and Computation, (November 2002; JSR-02-300)

Atmospheric Radiation Measurement (ARM) Program, (April 2002; JSR-01-315)

Non-GPS Methods of Geolocation, (January 2002; JSR-00-105)

Radiological Weapons, (2002; JSR-02-340)

Biofutures, (June 2001; JSR-00-130)

Spintronics, (February 2001; JSR-99-115)

Imaging Infrared Detectors II, (October 2000, JSR-97-600)

Advantage of Base-Line Redundancy in Sparse Apertures, (September 2000; JSR-2000-551)

Space Infrastructure for 2020, (September 2000; JSR-99-125)

Imaging Infrared Detectors II, (June 2000; JSR-97-500)

Molecular Electronics: Interfacing the Nano- and Micro-Worlds, (May 2000; JSR-99-120)

Power Sources for Ultra Low Power Electronics, (June 2000; JSR-98-130)

100 LBS TO Low Earth Orbit (LEO): Small-Payload Launch Options, (January 2000; JSR-98-140)

Data Mining and the Human Genome (January 2000; JSR-99-310)

Primary Performance Margins (December 1999; JSR-99-305) (unclassified introduction)

System-Level Flight Tests, December 1999; JSR-98-310)

Remanufacture (of Nuclear Weapons), (October 1999; JSR-99-300)

Army Battlefield Communications (September 1999; JSR-96-605)

Characterization of Underground Facilities (April 1999; JSR-97-155)

Non-destructive Evaluation and Self-Monitoring Materials (April 1999; JSR-98-145)

Electro Thermal Chemical Gun Technology Study (March 1999; JSR-98-600)

Small Unit Operations (June 1998; JSR-97-142)

Signatures of Aging Revisited (March 1998; JSR-98-320)

Signatures of Aging [of nuclear weapons] (January 1998; JSR-97-320)

Counterproliferation (January 1998; JSR-94-140)

High Energy Density Explosives (October 1997; JSR-97-110)

Human Genome Project (October 1997; JSR-97-315)

Small Scale Propulsion: Fly on the Wall, Cockroach in the Corner, Rat in the Basement, Bird in the Sky (September 1997; JSR-97-135)

Subcritical Experiments (March 1997; JSR-97-300)

New Technological Approaches to Humanitarian Demining, November 1996; JSR-96-115)

Quantum Computing (July 1996; JSR-95-115)

Inertial Confinement Fusion (ICF) Review (March 1996; JSR-96-300)

DNA Computing (October 1995; JSR-95-116)

JASON Nuclear Testing Study: Summary and Conclusions, August 1995; JSR-95-320)

Accelerator production of tritium - 1995 review (June 1995; JSR-95-310)

Accelerator based conversion of plutonium (March 1995; JSR-94-310)

Microsurveillance of the Urban Battlefield (February 1995; JSR-95-125)

https://archive.ph/li1LI

JASON Nuclear Testing Study: Summary and Conclusions (1995; JSR-95-320)

Jason Final Report, January 1995; JSR-94-105)

LIDAR (September 1994; JSR-93-310)

Science based stockpile stewardship (November 1994; JSR-94-345)

Counter proliferation /draft/ (August 1994; JSR-94-140)

MTPE /draft/ (August 1994; JSR-94-750)

ARM /draft/ (July 1994; JSR-94-300)

CO2 greenhouse mitigation (May 1994; JSR-93-340)

Underwater explosions ONR/DNA/NAVSEA /draft/ (January 1994; JSR-94-220)

Clouds and radiation – a premier [sic] (January 1993; JSR-90-307)

Verification of dismantlement of nuclear warheads and controls on nuclear materials (January 1993; JSR-92-331)

Small satellites and RPVs (January 1993; JSR-91-197)

SCHAMMP (Dec 1992; JSR-91-310)

JASON Global Grid Study (July 1992; JSR-92-100)

ARM review 1991 /draft/ (September 30, 1991; JSR-91-300)

Small satellite and RPAs in global change research /draft/ (August 1991; JSR-91-330-12)

Small Satellites (August 3, 1991; JSR-91-330-10)

ARM /draft/ (July 1991; JSR-91-300)

Verification Technology: Unclassified Version (October 1990; JSR-89-100A)

High gain arrays /draft/ (July 1990; JSR-90-210)

Detecting the greenhouse signal (May 1990; JSR-89-330)

JASON Review of Brilliant Pebbles, Vol. I, Executive Summary (September 1989; JSR-89-900)

Neutrino Detection Primer (March 1988; JSR-84-105)

Airships (1988; JSR-88-230)

Occulation study summary (February 1987; JSR-86-108)

JASON study on OTHB radars (1987; JSR-87-801)

Development stability of strategic defenses (October 1986; JSR-85-926)

Submarine detection: Acoustic contrast versus Acoustic glow (July 1985; JSR-85-108)

Seismic discrimination (April 1985 ; JSR-84-117)

SEASAT Report (January 1985; JSR-83-203)

Multiple scattering effects in radar observations of wakes (August 1984; JSR-84-203B)

SEASAT III & IV (August 1984; JSR-84-203)

SEASAT Report (March 1984; JSR-83-203)

The Long Term Impact of Atmospheric Carbon Dioxide on Climate: preliminary report (1979) JSR-78-07 and (1980) JSR-79-04; more fully published as MacDonald et al., (1982)[5]

Sonic Boom Report (November 1978; JSR-78-09)

Laser Propulsion Study (Summer 1977; JSR-77-12)

Low frequency sound propagation in a fluctuating infinite ocean II (June 1975; JSR-74-6)

Low frequency sound propagation in a fluctuating infinite ocean (April 1974; JSR-73-10)

The effect of surface currents on the equilibrium surface wave spectral energy density (October 1973; JSR-73-2)

Collected working papers on internal—surface wave interactions and related problems (August 2, 1972; JASON-72-Working Paper no.33)

Internal Wave-Surface Wave Interactions Revisited (March 1972; Paper P-853)

Report of the 1971 JASON Laser Summer Study. Volume I. Recommendations and Conclusions (1971)

Report of the 1971 JASON Laser Summer Study. Volume II. Supporting Appendices A-M (1971)

Generation and Airborne Detection of Internal Waves from an Object Moving through a Stratified Ocean, Vol II (April 1969; S-334)

Tactical Nuclear Weapons in Southeast Asia (March 1967)

References

The Jasons, p. 128

The Jasons, p. xiv

"Rep. Holt Expresses Concern Over DOD Decision to Disband JASON". Aip.org. Retrieved 2010-03-02.

The Jasons, pp. 196–199

The Long-term Impacts of Increasing Atmospheric Carbon Dioxide Levels

Further reading

Ann Finkbeiner, The Jasons: The Secret History of Science's Postwar Elite, Viking/Penguin, April 6, 2006, ISBN 0-670-03489-4

American Institute of Physics 2008 Science Journalist Award to The Jasons

John Horgan, "Rent-a-Genius", review of The Jasons, "The New York Times Book Review, April 16, 2006.

"JASON Defense Advisory Panel Reports

JASON is an independent scientific advisory group that provides consulting services to the U.S. government on matters of defense science and technology. It was established in 1960.

JASON typically performs most of its work during an annual summer study, and has conducted studies under contract to the Department of Defense, the Department of Energy, the National Nuclear Security Administration, the U.S. Intelligence Community, and the FBI. Approximately half of the resulting JASON reports are unclassified.

A selection of unclassified JASON studies is offered below."

https://irp.fas.org/agency/dod/jason/index.html

https://archive.ph/DKrqK

JASON Defense Advisory Panel Reports

JASON is an independent scientific advisory group that provides consulting services to the U.S. government on matters of defense science and technology. It was established in 1960.

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- Consistency of Data Products and Formal Privacy Methods for the 2020 Census, JSR-21-02, January 2022
  JASON was asked to study the impact on census data consistency of adding random noise as a data privacy mechanism.
- An Analysis of Data and Hypotheses Related to the Embassy Incidents, JSR-21-01, October 2021
  JASON was asked to evaluate potential causes of anomalous health incidents in US Embassy personnel. (via NYT)
- Assessment of 2020 Census Data Quality Processes, JSR-20-2N, February 2021
  JASON was asked to comment upon actions Census Bureau might take to strengthen the production and release of metrics to evaluate 2020 Census data quality.
- The Impacts of Large Constellations of Satellites, JSR-20-2H, November 2020
  JASON was asked by NSF and DOE to assess the impact of current and planned large satellite constellations on astronomical observations, and in particular the impact on the Vera Rubin Observatory.
- Electronic Materials Aging, JSR-20-2B, November 2020
  JASON was tasked by NNSA to recommend rapid discovery processes to more effectively uncover electronic material and device aging and failure modes for nuclear weapons.
- Secure Computation for Business Data, JSR-20-2E, November 2020
  The Census Bureau asked JASON to consider the use of secure computation technologies as a way of streamlining the collection and processing of business data used for economic analyses.
- Managing the Risk From COVID-19 During a Return to On-Site University Research, JSR-20-NS1, updated August 25, 2020
  JASON charged itself to assess risks and best practices for restarting university research programs.
- Formal Privacy Methods for the 2020 Census, JSR-19-2F, April 2020
  In preparation for the 2020 decennial census, the Census Bureau asked JASON to examine the scientific validity of the vulnerability that the Census Bureau discovered in its traditional approach to Disclosure Avoidance, the methods used to protect the confidentiality of respondent data.
- Space Assembly (redacted), JSR-19-2J, March 2020
  JASON was asked by the National Reconnaissance Office to study the benefits of In-Space Assembly and Manufacturing
- Fundamental Research Security, JSR-19-2I, December 2019
  Several incidents in recent years have led to concern that the openness of our academic fundamental research ecosystem is being taken advantage of by other countries. NSF has charged JASON to produce an unclassified report assessing these concerns that can be widely disseminated and discussed in the academic community
- Pit Aging, Letter Report, November 23, 2019, transmitted to Congress, April 6, 2020
  The Statement of Work asks JASON to consider the body of work on plutonium aging since 2006
- Bioweapons, JSR-2019-2D, performed for the Department of Energy, November 2019
- Acoustic Signals and Physiological Effects on U.S. Diplomats in Cuba (redacted), November 2018
  This study concerns a series of events affecting U.S. personnel stationed in Cuba. Some personnel have reported medical symptoms tha are correlated with, and have been by many personnel attributed to, specific sensory phenomena experienced at their residences in Havana. (via Buzzfeed)
- Prospects for Low Cost Fusion Development, JSR-18-011, November 2018
  With the ALPHA program on magneto-inertial fusion nearing completion, ARPA-E asked JASON to assess its accomplishments and the potential of further investments in this field.

- Satellite Performance, 2018
  This report was prepared by JASON for the National Reconnaissance Office. Originally Unclassified/FOUO, it was classified in response to a FOIA request.
- Artificial Intelligence for Health and Health Care, JSR-17-Task-002, December 2017
  HHS asked JASON to consider how AI will shape the future of public health, community health, and health care delivery. We focused on technical capabilities, limitations, and applications that can be realized within the next ten years.
- Perspectives on Research in Artificial Intelligence and Artificial General Intelligence Relevant to DoD, JSR-16-Task-003, January 2017
  AI technologies are of great importance to DoD missions. Defense systems and platforms with varying degrees of autonomy already exist. More importantly, AI is seen as the key enabling technology of a 'Third Offset Strategy' that seeks for the U.S. a unique, asymmetric advantage over near-peer adversaries.
- Low-Enriched Uranium (LEU) for Potential Naval Nuclear Propulsion Application (redacted), JSR-16-Task-013, November 2016
  JASON was asked by the Naval Nuclear Propulsion Program (NNPP) to conduct a technical assessment of a new fuel concept proposed for use in nuclear reactors on U.S. Navy warships. Realizing this potential could enable replacement of highly enriched uranium (HEU) in naval propulsion reactors with low-enriched uranium (LEU), with less impact on reactor size and lifetime than would be the case with today's fuel systems.
- Alternative Futures for the Conduct of the 2030 Census, JSR-16-Task-009, November 2016
  The Census Bureau asked JASON to consider alternative futures for 2030 and to propose a starting point from which the Census Bureau can begin to develop a 2030 strategy.
- Enhanced Capabilities for Subcritical Experiments, JSR-16-Task-011, October 7, 2016
  NNSA commissioned JASON to investigate aspects of the Enhanced Capabilities for Subcritical Experiments program, which is intended to provide a new x-ray radiographic source to diagnose subcritical experiments at U1a at the Nevada National Security Site.
- Respondent Validation for Non-ID Processing in the 2020 Decennial Census, JSR-15-Task-015, November 2015
  The Census Bureau seeks expert advice to develop methodologies to validate respondents are who they say they are when responding to online questionnaires as well as methodologies to detect and combat fraud.
- Technical Considerations for the Evolving U.S. Nuclear-Weapons Stockpile (Executive Summary), JSR-14-Task-006E, January 2015
  JASON is tasked in the present study to consider questions of possible common-mode failures that could impact effectiveness of active-stockpile segments.
- Arctic Radar (abstract only), JSR-14-Task-003, November 2014
  JASON was tasked to examine scientific and technical issues for the possible use for over-the-horizon radar (OTHR) to surveil the Arctic and sub-Arctic for aircraft and surface ships.
- Data for Individual Health, JSR-14-Task-007, November 2014
  JASON was asked to address how to bridge to a system focused on health of individuals rather than care of individuals.
- Chemical Exposure (executive summary), JSR-14-Task-005, October 2014
  The current study focuses on signatures of human exposure to chemical warfare (CW) agents.
- Open and Crowd-Sourced Data for Treaty Verification, JSR-14-Task-015, October 2014
  This study will examine tools for automated validation of open source information and assess the potential utility of open source data for treaty verification, transparency, and confidence building.
- Subsurface Characterization: Letter Report, JSR-14-Task-013, September 2014
  In response to a request from the Department of Energy, JASON recommends that DOE take a leadership role in the science and technology for improved measurement, characterization, and understanding of the state of stress of engineered subsurface systems in order to address major energy and security challenges of the nation.
- Advanced Propulsion (executive summary), JSR-14-Task-011, August 2014
  JASON studied high specific impulse propulsion systems for in-space orbita1 maneuvers of satellites.
- A Robust Health Data Infrastructure, JSR-13-700, November 2013
  HHS asked JASON to address the nationally significant challenge of developing comprehensive clinical datasets, collected in real world environments and accessible in real time, to support clinical research and to address public health concerns. These datasets could be used to guide clinical research, enhance medical decision-making, and respond quickly to public health challenges.
- Enhanced Geothermal Systems, JSR-13-320, December 2013
  DOE requested this study, identifying a focus on: i) assessment of technologies and approaches for subsurface imaging and characterization so as to be able to validate EGS opportunities, and ii) assessment of approaches toward creating sites for EGS, including science and engineering to enhance permeability and increase the recovery factor.
- Technical Challenges of Exascale Computing, JSR-12-310, April 2013

- Technical Challenges of Exascale Computing, JSR-12-310, April 2013
  This study examines the issues associated with implementing DOE/NNSA computational requirements on emerging exascale architectures. The study also examines the national security implications of failure to execute a DOE Exascale Computing Initiative in the 2020 time frame.
- Compressive Sensing for DoD Sensor Systems, JSR-12-104, November 2012
  JASON was asked to consider how compressed sensing may be applied to Department of Defense systems, emphasizing radar because installations on small platforms can have duty cycles limited by average transmit power.
- JASON B61 Life Extension Program Nuclear Scope Review, August 2012 (via UCS)
- Superconducting Computing (redacted), JSR-11-120, February 12, 2012
  A petascale superconduеting general processor should not be pursued. Single Flux Quantum logic is unlikely to provide an implementation that is superior in speed or energy to CMOS technology in the next decade.
- Hydrodynamic and Nuclear Experiments (redacted), JSR-11-340, November 2011
  JASON was asked by the National Nuclear Security Administration (NNSA) to examine the current plans from the NNSA laboratories for hydrodynamic and subcritical experiments and to make recommendations for future efforts.
- Impacts of Severe Space Weather on the Electric Grid, JSR-11-320, November 2011
  This 2011 JASON Summer Study focused on the impact of space weather on the electric grid, seeking to understand 1) the current status of solar observations, warnings, and predictions, 2) the plausibility of Mr. Kappenman's worst-case scenario, 3) how previous solar storms have affected some power grids, and 4) what can be done at reasonable cost to protect our grid.
- Tritium, JSR-11-345, November 2011
  JASON was asked to examine the current state of scientific knowledge and engineering practice on the physical and chemical bases for large-scale tritium breeding.
- Methods for Remote Determination of CO2 Emissions, JSR-10-300, January 2011
  JASON was asked to assess U.S. capabilities for estimating greenhouse gas (GHG) emissions in support of monitoring international agreements.
- The $100 Genome: Implications for the DoD, JSR-10-100, December 2010
  Rapid advances in DNA sequencing and other technologies are ushering in an era of personal genomics. Soon it will be possible for every individual to have access to the complete DNA sequence of his or her genome for a modest cost. JASON was asked to consider the impact of anticipated advances in genome sequencing technology over the next decade, and to assess the relevant operational opportunities and challenges that will be presented by these technologies.
- Science of Cyber-Security, JSR-10-102, November 2010
  JASON was asked by the DoD to examine the theory and practice of cyber-security, and to evaluate whether there are underlying fundamental principles that would make it possible to adopt a more scientific approach.
- MDA Discrimination (unclassified summary), JSR-10-620, August 3, 2010
  This JASON study reports on discrimination techniques, both present and planned, for US ballistic missile defense in the mid-course flight phase of ICBMs and regional missiles.
- North Korea Centrifuge Capabilities (redacted), JSR-09-510, October 2009
  ODNI asked the JASONs to undertake a summer study on the topic of North Korea's technical prowess and ability to construct and operate a uranium enrichment centrifuge capability.
- Rare Events, JSR-09-108, October 2009
  JASON was asked by the Department of Defense (DoD) to conduct an evaluation of the nation's ability to anticipate and assess the risk of rare events. "Rare events" specifically refers to catastrophic terrorist events, including the use of a weapon of mass destruction or other high-profile attacks, where there is sparse (or no) historical record from which to develop predictive models based on past statistics.
- Lifetime Extension Program (LEP) Executive Summary, JSR-09-334E, September 2009
  JASON was asked to assess the impacts of changes to stockpile warheads incurred from aging and LEPs.
- Microbial Forensics, JSR-08-512, May 2009
  JASON was asked to address the development of a research roadmap that would provide an underpinning for improved microbial forensic capabilities.
- Science and Technology for National Security, JSR-08-146, May 2009
  This study focuses on how best to structure basic research (BA1 or 6.1) within the DoD. The changing national and global context for basic research is reviewed and the rationale for basic research within the DoD is discussed.

- Data Analysis Challenges, JSR-08-142, December 2008
  JASON was asked to recommend ways in which the DOD/IC can handle present and future sensor data in fundamentally different ways, taking into account both the state-of-the-art, the potential for advances in areas such as data structures, the shaping of sensor data for exploitation, as well as methodologies for data discovery. This report examines the challenges associated with the analysis of large data and in particular compares DOD/IC requirements to those of several data intensive fields.
- Quest for Truth: Deception and Intent Detection, JSR-08-143, October 2008
  This report provides an assessment of the potential utility and efficacy of monitoring and assessing human behavioral neurophysiology and verbal and nonverbal communication to determine human intent in a military context.
- High Frequency Gravitational Waves, JSR-08-506, October 2008
  JASON was asked by staff at the National MASINT Committee of ODNI to evaluate the scientific, technological, and national security significance of high frequency gravitational waves (HFGW). Our main conclusions are that the proposed applications of the science of HFGW are fundamentally wrong; that there can be no security threat; and that independent scientific and technical vetting of such hypothetical threats is generally necessary.
- Current Spreading in Long Objects, JSR-08-531, October 2008
  This note derives the distribution of electrical spreading currents along the length of solid conducting objects for which the length substantially exceeds the width.
- DTRA National Ignition Facility, JSR-08-800, September 29, 2008
  JASON was asked to address the utility of the National Ignition Facility (NIF) to the Defense Threat Reduction Agency (DTRA) mission of determining the effects on DoD systems of the X-ray environments produced by nuclear weapons. Many DoD systems, such as re-entry vehicles and satellites, have survivability requirements that cannot presently be tested.
- Human Performance, JSR-07-625, March 2008
  The tasking for this study was to evaluate the potential for adversaries to exploit advances in Human Performance Modification, and thus create a threat to national security. In making this assessment, we were asked to evaluate long-term scenarios. We have thus considered the present state of the art in pharmaceutical intervention in cognition and in brain-computer interfaces, and considered how possible future developments might proceed and be used by adversaries.
- Wind Farms and Radar, JSR-08-125, January 2008
  JASON was asked by the Department of Homeland Security (DHS) to review the current status of the conflict between the ever-growing number of wind-turbine farms and air-security radars that are located within some tens of miles of a turbine farm.
- Synthetic Viruses, JSR-07-508, 2007
- Navy Ship Underwater Shock Prediction and Testing Capability Study, JSR-07-200, October 2007
  Underwater mines have long been a major threat to ships. The most probable threats are non-contact explosions, where a high pressure wave is launched towards the ship. JASON was asked by the Navy to examine the potential role of Modeling and Simulation (M&S;) for certifying ship hardness.
- Reliable Replacement Warhead Executive Summary, JSR-07-336E, September 7, 2007
  NNSA asked JASON to conduct a technical review of the Reliable Replacement Warhead (RRW), with a focus on the LLNL/Sandia design.
- Pit Lifetime, JSR-06-3335, January 11, 2007
  JASON reviewed the nearly-completed assessment of primary-stage "pit" lifetimes due to plutonium aging for nuclear weapon systems in the enduring U.S. stockpile.
- DAHRT, JSR-06-330, October 23, 2006
  JASON has been tasked by the NNSA with a review of progress on the second axis of the DARHT facility at the Los Alamos National Laboratory (LANL). DARHT 2 was declared complete in 2003 but, in subsequent testing, failed to achieve its design goals.
- Engineering Microorganisms for Energy Production, JSR-05-300, June 23, 2006
  JASON was asked by the Office of Biological and Environmental Research of the Department of Energy to assess the possibilities for using microorganisms to produce fuels as a metabolic product, in particular hydrogen or ethanol. We were asked to consider the prospects for achieving such biogenic fuel production in principle and in practice; and what the requirements and fundamental limitations are for achieving viability.
- Reducing DoD Fossil-Fuel Dependence, JSR-06-135, September 2006
  In light of an increasing U.S. dependence on foreign oil, as well as rising fuel costs for the U.S. and the DoD, and implications with regard to national security and national defense, JASON was charged in 2006 by the DDR&E; to assessing pathways to reduce DoD's dependence on fossil fuels.
- Quantifications of Margins and Uncertainties, JSR-04-330, March 23, 2005
  Quantification of Margins and Uncertainties is a formalism for dealing with the reliability of complex technical systems, and the confidence which can be placed in estimates of that reliability. We are specifically concerned with its application to the performance and safety of the nuclear stockpile, because the test moratorium precludes direct experimental verification.

- Emerging Viruses, JSR-05-502, 2005
- BioEngineering, JSR-05-130, 2005
- NIF Ignition, JSR-05-340, June 29, 2005
  JASON was asked by the National Nuclear Security Administration (NNSA) to assess the plan and prospects for achieving inertial confinement fusion (ICF) ignition at the National Ignition Facility (NIF) by 2010, including the use of beryllium targets.
- Tactical Infrasound, JSR-03-520, May 2005 (1.4 MB PDF file)
  JASON was asked to assist the U.S. Army's National Ground Intelligence (NGIC) in finding ways to enhance the effectiveness of infrasound monitoring. In addition, we were also tasked with determining whether infrasound monitoring was likely to provide information of value in other intelligence venues.
- High Performance Biocomputation, JSR-04-300, March 2005 (1.9 MB)
  A study commissioned by the Department of Energy to explore the opportunities and challenges presented by applying advanced computational power and methodology to problems in the biological sciences.
- Sensors to Support the Soldier, JSR-04-210, February 2005 (1.6 MB)
  The JASON study focused on the following topic areas: squad-level communications; location, navigation, and maps; sensing through walls; countering snipers; and uses for UAVs.
- Horizontal Integration: Broader Access Models for Realizing Information Dominance, JSR-04-132, December 2004
  A new, transaction-based approach to the problem of maintaining information security in a warfighting environment.
- DNA Barcodes and Watermarks, JSR-03-305, June 2004
  This study explored the feasibility of a program to tag genetically the microorganisms used for bioremediation, for the purpose of identification.
- Active Sonar Waveform, JSR-03-200, June 2004 (2.1 MB)
  JASON was tasked to study the recent spate of whale-beaching events which have been linked to sonar exercises. The initial goal of the study was to use the current level of understanding of these events to recommend modifications of the sonar waveform as a mitigation strategy. As we learned about the subject, however, it became clear to us that this is at present an impossible task; we just do not know enough about the damage mechanism and the chain of causation for an engineering solution to the problem.
- The Computational Challenges of Medical Imaging, JSR-03-300, February 2004 (2.1 MB)
  On the role and potential of computational technologies in medical imaging.
- Requirements for ASCI, JSR-03-330, October 2003 (4.5 MB)
  This is the report of the 2003 JASON summer study on the technical requirements for advanced scientific computing and modeling to support the Advanced Simulation and Computing (ASCI) Program of Department of Energy's and National Nuclear Security Administration's Science-based Stockpile Stewardship Program.
- Requirements for ASCI, slide presentation, 2003
- Portable Energy for the Dismounted Soldier, JSR-02-135, June 2003 (4.9 MB)
  Focuses primarily on fuel cells for portable electrical energy production.
- Turbulent Boundary Layer Drag Reduction, JSR-01-135, May 2003 (1.9 MB)
  Explores turbulent boundary-layer drag reduction, needed for transoceanic transport at high speeds.
- High Power Lasers, JSR-02-224, April 2003 (5.3 MB)
  In Summer 2002, JASON undertook a study for the National Nuclear Security Administration of the prospective scientific value of high energy petawatt lasers to the NNSA's Stockpile Stewardship Program .
- Biodetection Architectures, JSR-02-330, February 2003 (1.9 MB)
  JASON considered the essential components and operation of an effective strategy for homeland biodefense based on technologies that are currently available or likely to become available within the next five years. It is not realistic to undertake a nationwide, blanket deployment of biosensors.
- Opportunities at the Intersection of Nanoscience, Biology and Computation, JSR-02-300, November 2002 (5.0 MB)
  Research capabilities in nanoscience, molecular biology and computation have advanced to the point where it is possible to define research activities in which the development of nano-bio systems will support major DOE science goals.
- Atmospheric Radiation Measurement (ARM) Program, JSR-01-315, April 2002 (2.8 MB)
  In 2001, JASON was charged by the U.S. Department of Energy, Office of Health and Environmental Sciences, to review the DOE Atmospheric Radiation Measurement (ARM) program.
- Non-GPS Methods of Geolocation, JSR-00-105, January 2002 (780 KB)
  JASON was asked to conduct a brainstorming session on the problem of precision (at GPS-like accuracy) geolocation of ground elements by means other than use of GPS satellite transmissions in the usual way.

- Biosensing, JSR-01-100, 2001
- Moletronics II, JSR-00-120, June 2001
  Molecular Electronics and Quantum Computing present very different challenges in the development of their potential for future information technology.
- Biofutures, JSR-00-130, June 2001 (2.6 MB)
  The goal of this 2000 JASON summer study on Biofutures was to explore prospects for computer modeling of cellular biochemical networks and to ask more generally about the role of modeling in biology.
- Spintronics, JSR-99-115, February 2001 (1.4 MB)
- Imaging Infrared Detectors II, JSR-97-500, October 2000
  JASON has been tasked by the Army to review recent progress in infrared detector technology.
- Advantage of Base-Line Redundancy in Sparse Apertures, JSR-2000-551, September 2000 (345 KB)
  A general argument is presented to explain the dependence of observation-time T on sparseness f in observations with sparse apertures.
- Civilian Biodefense, JSR-99-105, 2000
- Space Infrastructure for 2020, JSR-99-125, September 2000 (1.8 MB)
  This report summarizes JASON's 1999 summer study on new approaches to the infrastructure needed for building, launching, powering and servicing earth- orbiting satellites that could be applied to military missions.
- Molecular Electronics: Interfacing the Nano- and Micro-Worlds, JSR-99-120, May 2000 (1.4 MB)
- Power Sources for Ultra Low Power Electronics, JSR-98-130, June 2000 (1.1 MB)
  DARPA asked JASON to examine the issue of power sources for low power electronics with a specific emphasis on the properties of nuclear batteries and integrated power sources combining power and electronics.
- 100 LBS TO Low Earth Orbit (LEO): Small-Payload Launch Options, JSR-98-140, January 2000 (1.5 MB)
  This report examines the options for launching small payloads to Low Earth Orbit (LEO). Various launch options are considered, including single and multi-stage, ground and air launched rockets, as well as the potential advantages of an intermediate air breathing boost stage.
- Data Mining and the Human Genome, JSR-99-310, January 2000 (1.6 MB)
  As genomics research moves from an era of data acquisition to one of both acquisition and interpretation, new methods are required for organizing and prioritizing the data. Powerful data mining techniques have been developed in other fields that, with appropriate modification, could be applied to the biological sciences.
- Primary Performance Margins, JSR-99-305, December 1999 (unclassified introduction)
- System-Level Flight Tests, JSR-98-310, December 1999 (940 KB)
  System-level flight tests are an important part of the overall effort by the United States to maintain confidence in the reliability, safety, and performance of its nuclear deterrent forces.
- Remanufacture (of Nuclear Weapons), JSR-99-300, October 1999
  The reconstitution of DOE remanufacturing takes place within the commitment to Science-Based Stockpile Stewardship (SBSS), and in an environment of the CTBT. The purpose of remanufacture is to maintain a safe and reliable stockpile of nuclear devices, together with their non-nuclear components that constitute a nuclear warhead.
- Army Battlefield Communications, JSR-96-605, September 1999 (3.2 MB)
  The Study Group was asked to access future COTS technologies as to their applicability to Army battlefield communications at the brigade and below levels and to identify research and development efforts needed in implementing the mandate.
- Characterization of Underground Facilities, JSR-97-155, April 1999 (3.0 MB)
  JASON undertook a study at DARPA's request to look for new opportunities for progress in the detection and characterization of UGFs. Part of our charge was to identify the most promising technology areas for investment, emphasizing standoff and covert sensor techniques.
- Nondestructive Evaluation and Self-Monitoring Materials, JSR-98-145, April 1999 (2.0 MB)
- Electro Thermal Chemical Gun Technology Study, JSR-98-600, March 1999
  Electro Thermal Chemical (ETC) gun technology refers to the use of plasma devices in place of traditional chemical ignitors to initiate the burning of high energy propellants in a controlled manner. The goal of ETC gun research and development is to provide higher muzzle velocities and more reliable performance for large bore weapons than is possible with existing gun technology.
- Exploiting the Genome, JSR-98-315, September 1998
  JASON conducted a DOE-sponsored study of the human genome project with special emphasiS on the areas of technology, quality assurance and quality control, and informatics.

- Small Unit Operations, JSR-97-142, June 1998 (6.3 MB)
  DARPA requested a JASON summer study on Small Unit Operations (SUO), with emphasis on the SUO vision of total situational awareness for small ground units, remote commanders and remote weapons systems. The study focused on new technologies and concepts which might lead to a dramatic improvement in battlefield situational awareness.
- Signatures of Aging Revisited, JSR-98-320, March 1998
  A follow-on to the JASON Summer Study on what is known about the aging of critical components in the nuclear weapons stockpile.
- Atmospheric Radiation Enhanced Shortwave Experiment (ARESE), JSR-96-310, February 1998
  This report has been prepared in response to a request by the U.S. Department of Energy to review and assess the data and data processing being undertaken in conjunction with the Atmospheric Radiation Measurement Enhanced Shortwave Experiment (ARESE).
- Insonification for Area Denial, JSR-97-120, January 1998
  This report examines concepts for area denial by use of focused sound sources.
- Signatures of Aging, JSR-97-320, January 1998
  In this study we review what is known about the aging of critical constituents, particularly the high explosives, polymers and metals in the enduring stockpile.
- Advanced Radar Technology for Wide Area Surveillance and Fire Control Quality Tracking, JSR-95-230, January 1998
  This report contains the results of the JASON summer study review of the ONR Advanced Capability Initiative to identify and develop advanced technologies needed for new ship and airborne search, tracking and illumination radars that would give ships a more effective self-defense capability against very low altitude cruise missiles and aircraft.
- Counterproliferation, JSR-94-140, January 1998 (3.3 MB)
  This JASON report was prepared in response to a request from the Defense Counterproliferation Initiative to comment on key areas of their program and to suggest the application of new technologies to key problems in the area of counterproliferation.
- Nanoflyer, JSR-97-115, October 1997
  A recent proposal to use electrostatic forces to lift and propel a small airborne vehicle is examined. We show here that although this is permitted by the laws of physics, it is very inefficient, and is limited to low areal loads by the requirement to avoid electric breakdown.
- High Energy Density Explosives, JSR-97-110, October 1997
  A JASON summer study was performed to assess the status of ongoing research programs in the area of energetic materials.
- Human Genome Project, JSR-97-315, October 1997
- Small Scale Propulsion: Fly on the Wall, Cockroach in the Corner, Rat in the Basement, Bird in the Sky, JSR-97-135, September 1997
  This study concerns small vehicles on the battlefield, and in particular their propulsion. These vehicles may fly or travel on the ground by walking, rolling or hopping. Their purpose is to carry, generally covertly, a useful payload to a place inaccessible to man, or too dangerous for men, or in which a man or manned vehicle could not be covert.
- An Unconventional, Highly Multipath-Resistant, Modulation Scheme, JSR-97-160, September 1997
  In the obstructed urban environment, the RF channel between two mobile communicators (whom we will here regard as being pedestrians on foot) is degraded in two distinguishable ways.
- Digital Beam Synthesis (DBS) for a High Capability Opto-Electronic Radar (HICAPOR), JSR-97-230, September 1997
  This JASON study investigates the capabilities of HICAPOR by calculating the antenna beam patterns formed by typical implementations of this concept. A wide variety of parameter choices are investigated and antenna patterns for HICAPOR are compared with conventional phased array and true time delay techniques of beam formation.
- High Performance Human-Computer Interfaces, JSR-96-130, September 1997
  Human interfaces to the computer have remained fairly crude since the use of teletypes despite the fact that computer, storage and communication performance have continued to improve by many orders of magnitude. How much better can we do?
- Subcritical Experiments, JSR-97-300, March 1997
  The authors reviewed the first two sub-critical experiments (SCEs) planned at the time, called Holog and Rebound, to be performed underground at the Nevada Test Site (NTS).
- Advanced Computing, JSR-94-130, December 1996
  The task of the study was to examine technical issues associated with the design and construction of advanced computers ona twenty year time frame. Focus was on two topics: superconducting and "single electron" logic, and advanced architecture.
- Use of the Fast Flux Test Facility for Tritium Production, JSR-96-325, October 1996
  This report provides the results of a JASON review of the technical feasibility of using the Department of Energy's (DOE's) Fast Flux Test Facility (FFTF) to generate tritium needed for the enduring United States' nuclear weapons stockpile.

- Quantum Computing, JSR-95-115, July 1996 (4.4 MB)
  An overview and assessment of the rapidly developing field of quantum computing is presented as a result of the 1996 JASON Summer Study. Interest in this field is fueled by the recent discovery by P. Shor of an efficient quantum algorithm for finding the prime factors of large numbers.
- Ultrasound, JSR-95-145, May 1996
  This report deals with the technical issues in ultrasound, both for combat and civilian care.
- Unconventional Systems Integration, JSR-95-120, May 1996
  This report examines some potential near term and long term applications of conventional integration in micro-electro mechanical systems (MEMs).
- Inertial Confinement Fusion (ICF) Review, JSR-96-300, March 1996
  During its 1996 Winter Study JASON reviewed the DOE Inertial Confinement Fusion (ICF) Program. This included the National Ignition Facility (NIF) and proposed studies.
- Atmospheric Radiation Measurement Program (ARM)Summer 1995 Review, JSR-95-315, October 1995
  This report examines the issues of anomalous atmospheric absorption and makes recommendations concerning future directions for the ARM program.
- DNA Computing, JSR-95-116, October 1995
  This report examines the potential and limitations of DNA computing.
- Nuclear Testing: Summary and Conclusions, JSR-95-320, August 1995.
  Examines the experimental and analytic bases for understanding the performance of each of the weapon types that are currently planned to remain in the U.S. enduring nuclear stockpile. Also examines whether continued underground tests at various nuclear yield thresholds would add significantly to confidence in the stockpile in the years ahead.
- Subsurface Science, JSR-94-330, July 1995
  Use of bacteria in subsurface remediation shows great promise. A number of technical problems in the use of bacteria require further investigation.
- Letter report on ARM, JSR-95-317, July 27, 1995
- Letter report on environmental bioremediation, JSR-95-330, July 26, 1995
- SAR, JSR-93-170, April 1995
  This report explores reformulations of the theory of SAR imaging so as to understand how to improve SAR images, structure parallel algorithms and machine architectures and to see what new SAR applications may be possible.
- Microsurveillance of the Urban Battlefield, JSR-95-125, February 1995 (4.7 MB)
  It is widely agreed that urban military operations demand greater 'situational awareness' than now exists. Soldiers need mapping tools to tell them where they are, real time information on what's around the corner and behind walls as well as reliable data links to receive and send orders and intelligence. At the same time, commanders need accurate knowledge of 'what's happening' in the city as a whole.
- Security and Privacy in the NII, JSR-94-150, February 1995
  The JASON study examined technical issues of security and privacy and came to the conclusion that the problems are policy and not technical in nature, That is, the technology exists to provide security and privacy services on the NIT but that issues of what services and their implementation must be resolved.
- JASON Final Report, JSR-94-105, January 1995
  During the 1994 JASON Summer Study twenty-five study topics were undertaken. Of these studies, twenty-one are included (i.e. summarized) in this report.
- Science Based Stockpile Stewardship, JSR-94-345, November 1994
  In this reoprt JASON analyzes the DOE program and makes specific recommendations regarding it.
- A Preliminary Review of Global CO2 Exchange Between Ocean and Atmosphere, JSR-90-302, March 8, 1993
  This report examines issues concerning the determination of the exchange of CO2 between the ocean and the atmosphere.
- Clouds and Radiation: A Primer, JSR-90-307, February 1993
  This paper addresses a previously unknown complex interdisciplinary process providing a feedback loop which may have major impact on the effect on global climate of the greenhouse gases in the atmosphere.
- Advanced Over-the-Horizon Radar, JSR-90-105, February 1993
  The task of the study was to evaluate DARPA's plans and roles for a proposed experimental test bed facility, which would be a precursor to an eventual operational AOTH system.
- Structural Acoustics: A General Form of Reciprocity Principles in Acoustics, JSR-92-193, January 1993
  A generalized Reciprocity Principle for Acoustics is obtained. By specialization, various principles which appear in the literature are obtained.
- Verification of Dismantlement of Nuclear Warheads and Controls on Nuclear Materials, JSR-92-331, January 1993
  This study addresses the question of verification of future agreements with respect to dismantlement and destruction of nuclear warheads, bans on the production of additional quantities of plutonium (Pu) and highly enriched uranium (HEU) for nuclear weapons and agreements on the end-use or ultimate disposal of special nuclear materials (SNM).

- Self-Focusing Instabilities Induced by Over-The-Horizon (OTH) Radars, JSR-90-107, December 1992
- Drag Reduction by Polymer Additives, JSR-89-720, October 1992
  The 1989 JASON Summer Study on Drag Reduction focused on the physics which underlies methods utilizing polymer studies.
- Acoustic Warfare: Bubble Clouds, JSR-91-113, October 1992
  In this report, we survey the basic ingredients that go into the bubble cloud hypothesis for the enhanced acoustic backscatter seen at high enough frequency and wind speed.
- JASON Global Grid Study, JSR-92-100, July 1992
  An assessment of the emerging global communications grid.
- Global Change and the Dark of the Moon, JSR-91-315, June 1992
  We have considered the possibility of using earthshine to measure the reflectance properties of the earth (albedo and phase function).
- Effective Medium Theory for the Elastic Properties of Composites and Acoustics Applications, JSR-91-112, February 1992
  We derive an effective medium theory that predicts the bulk and shear moduli of composite materials consisting of a matrix materal with soft or hard ellipsoidal inclusions.
- Continuum Approaches for Describing Solid-Gas and Solid-Liquid Flow, JSR-91-310, February 1992
  Two-phase continuum models have been used to describe the multiphase flow properties of solid-gas and solid-liquid mixtures. The approach is limited in that it requires many fitting functions and parameters to be determined empirically, and it does not provide natural explanations for some of the qualitative behavior of solid-fluid flow.
- Persistence in Climate, JSR-91-340, February 1992
  Persistence in weather forecasting is used to describe runs of several days with similar weather characteristics. This general notion of persistence is extended to long term records of climate by examining the scaling properties of the range, maximum minus minimum, of the integral or sum of observed or calculated variable.
- Statistics of Extreme Events with Application to Climate, JSR-90-305, January 1992
  The statistical theory of extreme events is applied to observed global average temperature records and to simplified models of climate. Both hands of records exhibit behavior in the tails of the distribution that would be expected from a random variable having a normal distribution.
- CHAMMP Review, JSR-90-306, January 1992
  CHAMMP (Computer Hardware. Advanced Mathematics and Model Physics) is a new DOE program designed to move climate models from the current generation of supercomputers to massively parallel computers of the future. The general computing goal of CHAMMP is to provide a ten thousandfold increase in computing speed.
- Small Satellites and RPAs in Global-Change Research, Summary and Conclusions, JSR-91-330A, January 1992
  JASON has now conducted two studies on the use of small satellites and remotely-piloted aircraft (RPAs) in global change research, with special reference to the DOE Atmospheric Radiation Measurement (ARM) program and to DARPA's Small Satellite program.
- Small Satellites and RPAs in Global-Change Research, JSR-91-330, January 1992
  This report contains an investigation of those global change science problems that can be addressed by remotely piloted aircraft or by small satellites. including the relationship to the NASA EOS program. New types of measurements that could be made possible by such satellite or aircraft platforms are pointed out.
- Accelerator Production of Tritium (APT), JSR-92-310, January 1992
  This report evaluates the practicality of using particle accelerator technology to start producing the reduced goal quantities of tritium at the delayed start-up date of 2005.
- Issues in Predictability, JSR-90-320, December 1991
  Since the beginning of the greenhouse debate, policy makers have demanded from the scientific community predictions of future climate in limited geographical areas and limited time intervals. Current climate models clearly do not have such capabilities, as is demonstrated by large disagreements among the models of continental size regions. Largely lost in the debate are fundamental questions such as: What is meant by predictability?
- Small Satellites, JSR-91-330-10, August 3, 1991
  How might DoD- and DOE-originated instrument concepts be used in the Global Change Research Program?
- U.S. Special Operations Command, JSR-90-195, March 1991
  This report summarizes the 1990 JASON Summer Study examination of a number of technical questions raised by the Special Operations Command
- Verification Technology: Unclassified Version, JSR-89-100A, October 1990 (5.7 MB)
  This report examines several technology issues relating to verification of nuclear weapons treaties. These include: non-convertible design of cruise missiles, tags and seals, radiation detection and surveillance.
- Cellular Automata and Parallel Processing for Practical Fluid-Dynamics Problems, JSR-86-303, September 1990
  During the 1986 JASON Summer Study a group of JASONs undertook to examine, under the sponsorship of the Department of Energy and DARPA, the utility of cellular automata in physical science calculations, especially in fluid dynamics.

- Spectra of Surface Waves, JSR-88-130, March 1989
  This document represents notes that I have collected over the past decade describing surface wave spectra.
- Neutrino Detection Primer, JSR-84-105, March 1988 (2 MB)
  This report is intended to provide for non-expert readers a survey of natural and man-made neutrino sources and a critical review of various methods which have been proposed for their detection.
- Artificial Gill, JSR-86-104, November 1986
  A system which would permit an undersea vehicle to extract oxygen from the seawater is intriguing, and may permit the development of very long endurance low velocity undersea vehicles.
- Some Surface Wave Modulation Mechanisms Relating to the JOWIP and SARSEX Observations, May 1986
  Large internal wave amplitudes were observed in the JOWIP and SARSEX experiments. These led to signifioant surtace wave modulations, as observed directly and from radar observations.
- Bispectra, JSR-83-204, January 1985
  This report provides an introduction to bispectral analysis.
- SEASAT III & IV, JSR-84-203, August 1984
  JASON continues its theoretical investigation of understanding the origin of the ship wakes seen by the SEASAT radar. The present effort incorporates the new experimental results from the Georgia Strait and Gulf of Alaska experiments.
- Speech Research, JSR-82-601, May 1984
  The mathematical modeling of speech for such applications as word or speaker recognition has been intensively studied over the past twenty years.
- SEASAT II, JSR-83-203, March 1984
  A brief overview of SEASAT and ship wake characteristics is given. The authors do not believe that the V-shaped wakes seen by the SEASAT satellite are external waves because ship wakes are three to four orders of magnitude too weak to explain the observed radar returns.
- Reversible Logic as a Strategy for Computing, JSR-83-112, January 1984
  During the 1983 Summer Study, a few members of JASON attempted to survey the current status of the reversible logic approach to digital computing.
- Blue-Green Lasers and Electrodeless Flashlamps, JSR-83-101, August 1983
  This paper addresses the questions of combining the technology of moderate pressure electrodeless discharge lamps with the efficiency of a resonantly pumped solid-state laser to achieve an efficient, compact, and reliable blue-green laser.
- FISH RAGU (Fish, Radio-Receiving and Generally Useful), JSN-81-64, August 1981
  The concept of using a 5O kg self-propelled body as a receiver for VLF signals is presented. This "fish" could operate a few meters below che surface and communicate with a submarine via high frequency acoustics.
- Visible Chemical Lasers, JSR-80-14, December 1980
  In the spring of 1980 DARPA requested that JASON review the present status of research on visible chemical lasers. During the summer of 1980 a JASON committee spoke to a number of scientists with interests in areas related to visible chemical lasers. This report summarizes the most interesting ideas encountered during the summer.
- Tunnel Detection, JSR-79-11, April 1980
  This report investigates the problem of detecting tunnels; it focuses on the characteristics of the propagating medium and on techniques using compressional seismic (P) and electromagnetic (EM) waves propagating between sources and sensors located in boreholes at depths comparable with the tunnel for which one is searching.
- The Long Term Impact of Atmospheric Carbon Dioxide on Climate, JSR-78-07, April 1979
  This report addresses the questions of the sources of atmospheric carbon dioxide, considers distribution of the present carbon dioxide among the atmospheric, oceanic and biospheric reservoir and assesses the impact on climate as reflected by the average ground temperature at each latitude of significant increases in atmospheric carbon dioxide.
- Counter-Rotating Disk Homopolar Generator, JSN-79-03, 1979
- Impact Fusion With a Segmented Rail Gun, 1979
- Magnetic-Gun Igniter for Controlled Thermonuclear Fusion, July 10-12, 1979
- Sonic Boom Report, JSR-78-09, November 1978 (6.6 MB)
  Press reports of "East Coast Mystery Booms" have led to a number of studies of the propagation of shock waves (generated by the SST/Concorde) into the thermosphere [thanks to Todd Lemire for the document]

- Impact Fusion With a Segmented Rail Gun, 1979
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- JASON Laser Propulsion Study, JSR-77-12, Summer 1977 (5 MB)
  Laser propulsion is an idea that may produce a revolution in space technology. [thanks to Todd Lemire]
- Applied Mathematics, JSR-75-13, April 1976
  We suggest a number of projects that would lead to useful and important results.
- Internal Wave-Surface Wave Interactions Revisited, Paper P-853, March 1972
  The interaction of internal waves and surface waves in water is explored in the regions where the effects of the interaction are small.
- Acoustic Backscatter from Microstructure, Paper P-886, December 1971
  The acoustic backscatter from the microstructure in vertical temperature distribution of the ocean is calculated and compared to observed volume backscatter.
- Generation and Airborne Detection of Internal Waves from an Object Moving Through a Stratified Ocean, April 1969
  This study deals with fundamentals in the performance of airborne sensors for detecting the wake in the passage of a submarine through stratified water.
- Project Seesaw, February 1968
  This study reports on a review of the status of theory and experiment relevant to Project SEESAW and makes observations and recommendations about continued work in these two areas.
- Tactical Nuclear Weapons in Southeast Asia, March 1967 (via Nautilus)
  The purpose of this study is to evaluate the military consequences of a U.S. decision to use tactical nuclear weapons in Southeast Asia, under the assumption that the war remains theater-limited and that no strategic exchange occurs.
- Air-Supported Anti-Infiltration Barrier, August 1966
  In this report we discuss a possible air-supported barrier or interdiction zone that would help to isolate the South Vietnam battlefield from North Vietnam.

Related Resources

- Titles of Some JASON Reports, 1960-2022, compiled by Allen Thomson, updated February 2022
- JASON facilities requirements, January 15, 2021
- JASON contract solicitation, January 13, 2021
- JASON 2011 Fall Meeting Program, November 18-19, 2011

- Advisory role of JASON scientific advisory group, National Defense Authorization Act for FY2020, December 20, 2019
- Unsound ASW Bibliography, 1968
- Oral History Transcript - Richard Garwin, by Finn Aaserud, Center for History of Physics, American Institute of Physics, June 24, 1991
- Oral History Transcript - Steven Weinberg, by Finn Aaserud, Center for History of Physics, American Institute of Physics, June 28, 1991
- Oral History Transcript - Dr. Gordon MacDonald, Center for History of Physics, American Institute of Physics, April 16, 1986
- Sound and Light Phenomena: A Study of Historical and Modern Occurrences by Sandra Claflin-Chalton and Gordon J. MacDonald, November 1978
- Comments on Sub-LF SATCOM Technology Development Program, December 1972

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https://irp.fas.org/agency/dod/jason/
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Leadership

JASON PROVIDAKES, PH.D.

President & Chief Executive Officer

Dr. Jason Providakes is the president and chief executive officer of The MITRE Corporation. He leads the organization in its mission to serve the public interest as a systems engineering and applied sciences company bringing communities together to solve large-scale and complex problems of national importance. MITRE is known for its stewardship of federally funded research and development centers (FFRDCs) on behalf of U.S. government sponsors.

Since joining MITRE in 1991, Dr. Providakes has held leadership positions on major programs to modernize federal infrastructure and create mission capabilities for national security, public health, the country's veterans, and civil agencies. Prior to becoming president and CEO, he served as senior vice president and general manager of MITRE's Center for Connected Government (CCG). The FFRDCs within CCG (now known as the MITRE Public Sector) include the Center for Enterprise Modernization, the Homeland Security Systems Engineering and Development Institute (HSSEDI™), the Judiciary Engineering and Modernization Center, and the Centers for Medicare & Medicaid Services Alliance to Modernize Healthcare (The Health FFRDC). He also served as director of HSSEDI and The Health FFRDC.

Dr. Providakes began his career in the National Security Engineering Center, the FFRDC sponsored by the Department of Defense (DoD). He supported the DoD chief information officer to ensure programs involving strategic and theater systems benefited from a systems engineering approach. He has also served as chief engineer for MITRE's Washington Command, Control, and Communications Center and as executive director for MITRE's Army Systems & Technology Division, where he was central to the Army's "digitize the battlefield" transformation.

Dr. Providakes' career is rooted in scientific research in support of national security. He has served as a member of the Army Science Board and participated in several studies of the National Academy of Sciences.

An optical and remote sensing technical expert, Dr. Providakes has taught, performed research, and published extensively on radar backscatter of the Earth's ionosphere. He holds a doctorate from Cornell University, and master's and bachelor's degrees in electrical engineering from Worcester Polytechnic Institute.

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MITRE intends to maintain a website that is fully accessible to all individuals. If you are unable to search or apply for jobs and would like to request a reasonable accommodation for any part of MITRE's employment process, please contact MITRE's Recruiting Help Line at 703-983-8226 or email at recruitinghelp@mitre.org

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Vice President, Director, Homeland Security Systems Engineering & Development Institute (HSSEDI™)

Julie Bowen

Senior Vice President, Operations & Outreach, and Chief Legal Officer; Vice President, Center for Advanced Aviation System Development

Kerry Buckley, Ph.D.

Vice President, Air & Space Forces, MITRE National Security Sector

Charles Clancy, Ph.D.

Senior Vice President, General Manager, MITRE Labs, Chief Futurist

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  - Fellows
  - Technical Fellows
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- Contact Us

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Vice President, Applied Sciences

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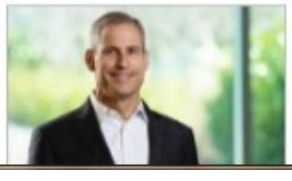
Laurie Giandomenico, Ph.D.

Vice President & Chief Acceleration Officer, MITRE Accelerator

Julie M. Gravallese

Vice President, Workplace Innovation



Dana (Keoki) Jackson, Sc.D.

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Wen Masters, Ph.D.

Vice President, Cyber Technologies

Beth Meinert

Vice President, Director, Center for Government Effectiveness & Modernization

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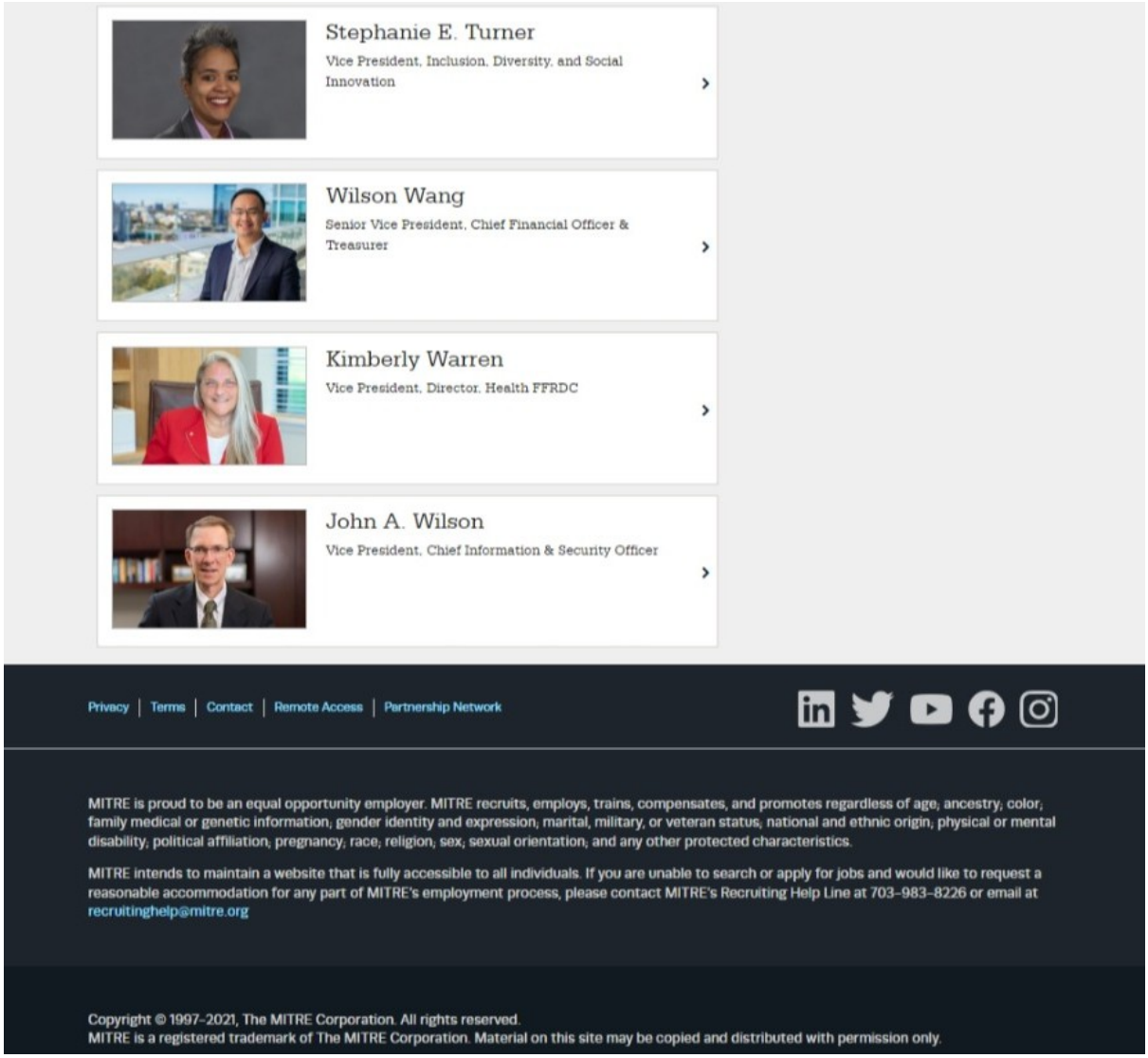
Vice President, People Experience & Strategy

Douglas Robbins

Vice President, Engineering and Prototyping, MITRE Labs

Jay Schnitzer, M.D., Ph.D.

Senior Vice President, Chief Technology Officer, and Chief Medical Officer



MITRE

Who’s Spraying Us? Raytheon, MITRE Corp & MIT Prime Suspects: Peter Kirby

Peter A. Kirby is a researcher and author from San Rafael, California, author of "Chemtrails Exposed - A New Manhattan Project."

In this interview with Era of Wisdom, Peter breaks down his extensive research on the history of weather modification (geoengineering), thoroughly documented in his book yet kept from the public, from the 1940's to present day.

He goes into exactly who the prime suspects are in spraying us today:

corporations such as Raytheon, MITRE Corporation, and their academic foundations in Massachusetts Institute of Technology (MIT).

Government organizations such as the Department of Defense and its DARPA division, NATO, and the CIA are discussed.

As two residents of Northern California, we discuss our experiences observing the distinct odor of chemtrails recently, and subsequent symptoms.

We discuss the observed escalation of spraying activity in 2016, and how a new type of aerosol mix seems to be in use now compared to before mid-2016, that smells plastic, sharp, metallic, and similar to static electricity, rather than the powdery, starchy metallic odor observed previously.

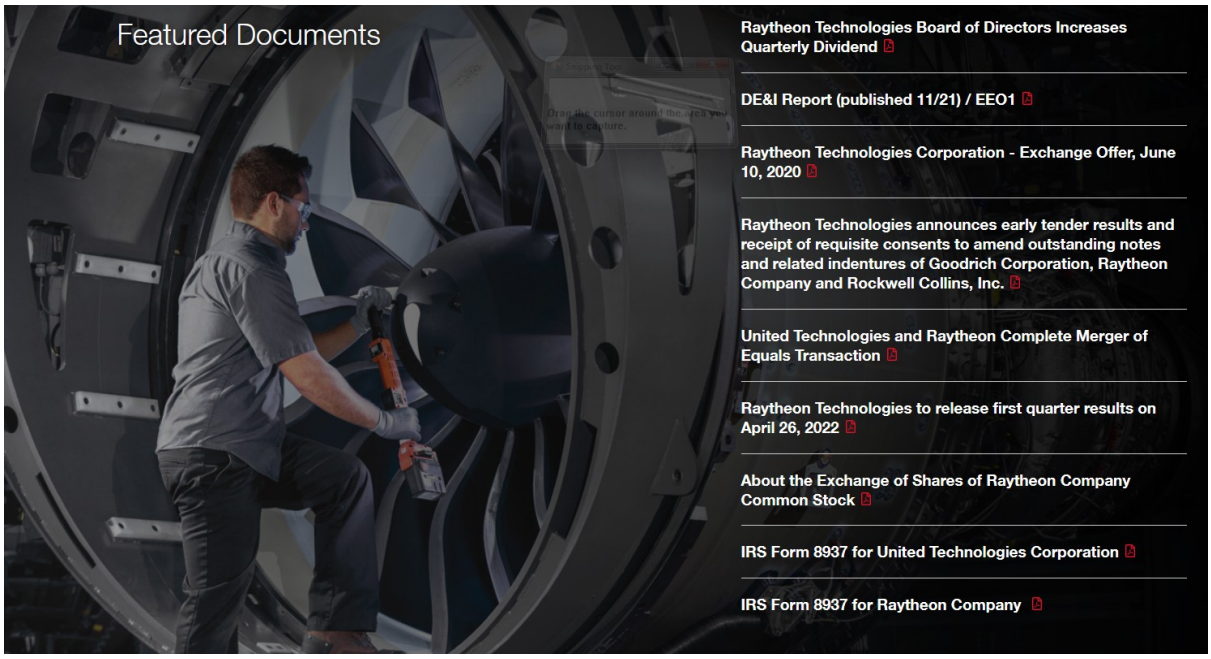
For an entry level understanding of what chemtrails and geoengineering are, what materials are generally thought to be sprayed, the patents for aerosols, rain tests, and other information, check the sources below.

https://www.bibliotecapleyades.net/ciencia2/ciencia_chemtrails97.htm

https://www.activistpost.com/tag/peter-kirby

https://www.mitre.org/about/corporate-overview

Raytheon Technologies



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https://prd-sc101-cdn.rtx.com/-/media/rtx/our-company/corporate-governance/media/documents/human-capital-and-compensation-committee-charter.pdf?rev=17d5feebbec5426f93ac3b35d76d8e94

Board of Directors

The Raytheon Technologies' Board of Directors have the skills and expertise essential for effective oversight in light of the company's business requirements and strategy. They participate on five committees — Audit, Compensation, Finance, Governance and Public Policy, and Special Activities — to provide responsible oversight across the company. The members of the three key committees — Audit, Compensation and Governance and Public Policy — are all independent directors.

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Brian C. Rogers

Retired Chairman, T. Rowe Price Group, Inc.

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Robert O. Work

Former Deputy Secretary of Defense

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President, Raytheon Intelligence & Space

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Senior Vice President, Corporate Strategy & Development

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Chief Operating Officer

Vince Campisi

Senior Vice President, Enterprise Services, Chief Digital Officer

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Senior Vice President, Operations, Supply Chain, Quality, EH&S

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Senior Vice President, Chief Communications Officer

Wesley D. Kremer

President, Raytheon Missiles & Defense

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Executive Vice President, General Counsel

Neil G. Mitchill Jr.

Executive Vice President, Chief Financial Officer

Mark E. Russell

Senior Vice President, Chief Technology Officer

Jeff Shockey

Senior Vice President, Global Government Relations

Stephen J. Timm

President, Collins Aerospace

Dantaya Williams

Executive Vice President, Chief Human Resources Officer

Raytheon Technologies | Investors

Filing date	Form	Description	Filer	View
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Harris Bernard A Jr	0001225208-22-006204.pdf View HTML 0001225208-22-006204.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Atkinson Tracy A	0001225208-22-006203.pdf View HTML 0001225208-22-006203.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Oliver George	0001225208-22-006205.pdf View HTML 0001225208-22-006205.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Pawlikowski Ellen M	0001225208-22-006209.pdf View HTML 0001225208-22-006209.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Paliwal Dinesh C	0001225208-22-006208.pdf View HTML 0001225208-22-006208.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	O'Sullivan Margaret L.	0001225208-22-006207.pdf View HTML 0001225208-22-006207.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Winnefeld James A Jr	0001225208-22-006213.pdf View HTML 0001225208-22-006213.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Ramos Denise L	0001225208-22-006210.pdf View HTML 0001225208-22-006210.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-22-006206.pdf View HTML 0001225208-22-006206.xls

April 27, 2022	4	Statement of changes in beneficial ownership of securities	Reynolds Fredric G	0001225208-22-006211.pdf View HTML 0001225208-22-006211.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	Work Robert O	0001225208-22-006214.pdf View HTML 0001225208-22-006214.xls
April 27, 2022	4	Statement of changes in beneficial ownership of securities	ROGERS BRIAN C	0001225208-22-006212.pdf View HTML 0001225208-22-006212.xls
March 29, 2022	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-22-005197.pdf View HTML 0001225208-22-005197.xls
March 29, 2022	4	Statement of changes in beneficial ownership of securities	DaSilva Kevin G	0001225208-22-005198.pdf View HTML 0001225208-22-005198.xls
March 29, 2022	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-22-005199.pdf View HTML 0001225208-22-005199.xls
March 23, 2022	4	Statement of changes in beneficial ownership of securities	DaSilva Kevin G	0001225208-22-005003.pdf View HTML 0001225208-22-005003.xls
March 23, 2022	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-22-005004.pdf View HTML 0001225208-22-005004.xls
March 23, 2022	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-22-005002.pdf View HTML 0001225208-22-005002.xls
March 9, 2022	3	Initial filing by director officer or owner of more than ten percent.	EDDY SHANE G	0001225208-22-004414.pdf View HTML 0001225208-22-

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March 1, 2022	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-22-003721.pdf View HTML 0001225208-22-003721.xls
February 22, 2022	4	Statement of changes in beneficial ownership of securities	Atkinson Tracy A	0001225208-22-002948.pdf View HTML 0001225208-22-002948.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	HAYES GREGORY	0001225208-22-002616.pdf View HTML 0001225208-22-002616.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	DaSilva Kevin G	0001225208-22-002615.pdf View HTML 0001225208-22-002615.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-22-002613.pdf View HTML 0001225208-22-002613.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	JOHNSON AMY L	0001225208-22-002617.pdf View HTML 0001225208-22-002617.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	Calio Christopher T.	0001225208-22-002614.pdf View HTML 0001225208-22-002614.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-22-002618.pdf View HTML 0001225208-22-002618.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	Timm Stephen J.	0001225208-22-002621.pdf View HTML 0001225208-22-002621.xls

February 17, 2022	4	Statement of changes in beneficial ownership of securities	WILLIAMS DANTAYA M	0001225208-22-002622.pdf View HTML 0001225208-22-002622.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	Mitchill Neil G. JR	0001225208-22-002620.pdf View HTML 0001225208-22-002620.xls
February 17, 2022	4	Statement of changes in beneficial ownership of securities	MAHARAJH RAMSARAN	0001225208-22-002619.pdf View HTML 0001225208-22-002619.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	WILLIAMS DANTAYA M	0001225208-22-001639.pdf View HTML 0001225208-22-001639.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-22-001633.pdf View HTML 0001225208-22-001633.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	HAYES GREGORY	0001225208-22-001634.pdf View HTML 0001225208-22-001634.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	JOHNSON AMY L	0001225208-22-001635.pdf View HTML 0001225208-22-001635.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	Calio Christopher T.	0001225208-22-001632.pdf View HTML 0001225208-22-001632.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-22-001640.pdf View HTML 0001225208-22-001640.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	MAHARAJH RAMSARAN	0001225208-22-001636.pdf View HTML 0001225208-22-

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February 8, 2022	4	Statement of changes in beneficial ownership of securities	Mitchill Neil G. JR	0001225208-22-001637.pdf View HTML 0001225208-22-001637.xls
February 8, 2022	4	Statement of changes in beneficial ownership of securities	Timm Stephen J.	0001225208-22-001638.pdf View HTML 0001225208-22-001638.xls
February 1, 2022	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-22-001234.pdf View HTML 0001225208-22-001234.xls
February 1, 2022	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-22-001235.pdf View HTML 0001225208-22-001235.xls
February 1, 2022	4	Statement of changes in beneficial ownership of securities	DaSilva Kevin G	0001225208-22-001233.pdf View HTML 0001225208-22-001233.xls
December 9, 2021	3	Initial filing by director officer or owner of more than ten percent.	MAHARAJH RAMSARAN	0001225208-21-014735.pdf View HTML 0001225208-21-014735.xls
December 9, 2021	4	Statement of changes in beneficial ownership of securities	MAHARAJH RAMSARAN	0001225208-21-014744.pdf View HTML 0001225208-21-014744.xls
November 9, 2021	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-21-013729.pdf View HTML 0001225208-21-013729.xls
November 1, 2021	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-21-013378.pdf View HTML 0001225208-21-013378.xls

October 6, 2021	4	Statement of changes in beneficial ownership of securities	WILLIAMS DANTAYA M	0001225208-21-012983.pdf View HTML 0001225208-21-012983.xls
October 4, 2021	4	Statement of changes in beneficial ownership of securities	HAYES GREGORY	0001225208-21-012794.pdf View HTML 0001225208-21-012794.xls
October 4, 2021	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	
September 13, 2021	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-21-012321.pdf View HTML 0001225208-21-012321.xls
September 10, 2021	3	Initial filing by director officer or owner of more than ten percent.	JOHNSON AMY L	0001225208-21-012278.pdf View HTML 0001225208-21-012278.xls
September 2, 2021	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-21-011969.pdf View HTML 0001225208-21-011969.xls
August 5, 2021	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-21-011233.pdf View HTML 0001225208-21-011233.xls
July 19, 2021	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-21-010776.pdf View HTML 0001225208-21-010776.xls
June 3, 2021	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-21-008894.pdf View HTML
May 24, 2021	4	Statement of changes in beneficial ownership of securities	JIMENEZ FRANK R	0001225208-21-008458.pdf View HTML 0001225208-21-

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May 24, 2021	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-21-008457.pdf View HTML 0001225208-21-008457.xls
May 4, 2021	4/A	Amendment to a previously filed 4	Azevedo Roy	0001225208-21-007504.pdf View HTML 0001225208-21-007504.xls
May 4, 2021	4	Statement of changes in beneficial ownership of securities	Dumais Michael R	0001225208-21-007505.pdf View HTML 0001225208-21-007505.xls
May 4, 2021	4/A	Amendment to a previously filed 4	Mitchill Neil G. JR	0001225208-21-007503.pdf View HTML 0001225208-21-007503.xls
April 30, 2021	4	Statement of changes in beneficial ownership of securities	JIMENEZ FRANK R	0001225208-21-007307.pdf View HTML 0001225208-21-007307.xls
April 28, 2021	3	Initial filing by director officer or owner of more than ten percent.	Harris Bernard A Jr	0001225208-21-007121.pdf View HTML 0001225208-21-007121.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	O'Sullivan Margaret L.	0001225208-21-007127.pdf View HTML 0001225208-21-007127.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Oliver George	0001225208-21-007125.pdf View HTML 0001225208-21-007125.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	ROGERS BRIAN C	0001225208-21-007132.pdf View HTML 0001225208-21-007132.xls

April 28, 2021	4	Statement of changes in beneficial ownership of securities	Reynolds Fredric G	0001225208-21-007131.pdf View HTML 0001225208-21-007131.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Ortberg Robert Kelly	0001225208-21-007126.pdf View HTML 0001225208-21-007126.xls
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April 28, 2021	4	Statement of changes in beneficial ownership of securities	Work Robert O	0001225208-21-007134.pdf View HTML 0001225208-21-007134.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Ramos Denise L	0001225208-21-007130.pdf View HTML 0001225208-21-007130.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Harris Bernard A Jr	0001225208-21-007123.pdf View HTML 0001225208-21-007123.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Atkinson Tracy A	0001225208-21-007122.pdf View HTML 0001225208-21-007122.xls
April 28, 2021	3/A	An amendment to a 3 filing. Non-EDGAR filing	Mitchill Neil G. JR	0001225208-21-007135.pdf View HTML 0001225208-21-007135.xls
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April 28, 2021	4	Statement of changes in beneficial ownership of securities	Winnefeld James A Jr	0001225208-21-007133.pdf View HTML 0001225208-21-

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April 28, 2021	4	Statement of changes in beneficial ownership of securities	Pawlikowski Ellen M	0001225208-21-007129.pdf View HTML 0001225208-21-007129.xls
April 28, 2021	4	Statement of changes in beneficial ownership of securities	Mitchill Neil G. JR	0001225208-21-007137.pdf View HTML 0001225208-21-007137.xls
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March 23, 2021	4	Statement of changes in beneficial ownership of securities	JIMENEZ FRANK R	0001225208-21-005814.pdf View HTML 0001225208-21-005814.xls
March 23, 2021	4	Statement of changes in beneficial ownership of securities	DaSilva Kevin G	0001225208-21-005819.pdf View HTML 0001225208-21-005819.xls
March 23, 2021	4	Statement of changes in beneficial ownership of securities	Kennedy Thomas A	0001225208-21-005813.pdf View HTML 0001225208-21-005813.xls
March 23, 2021	4	Statement of changes in beneficial ownership of securities	Wood Michael J	0001225208-21-005816.pdf View HTML 0001225208-21-005816.xls

March 23, 2021	4	Statement of changes in beneficial ownership of securities	O'Brien Anthony F	0001225208-21-005815.pdf View HTML 0001225208-21-005815.xls
March 23, 2021	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-21-005818.pdf View HTML 0001225208-21-005818.xls
March 22, 2021	4	Statement of changes in beneficial ownership of securities	Calio Christopher T.	0001225208-21-005753.pdf View HTML 0001225208-21-005753.xls
March 22, 2021	4	Statement of changes in beneficial ownership of securities	WILLIAMS DANTAYA M	0001225208-21-005754.pdf View HTML 0001225208-21-005754.xls
March 22, 2021	4/A	Amendment to a previously filed 4	WILLIAMS DANTAYA M	0001225208-21-005752.pdf View HTML 0001225208-21-005752.xls
March 22, 2021	4	Statement of changes in beneficial ownership of securities	HAYES GREGORY	0001225208-21-005755.pdf View HTML 0001225208-21-005755.xls
March 8, 2021	4	Statement of changes in beneficial ownership of securities	Timm Stephen J.	0001225208-21-004861.pdf View HTML 0001225208-21-004861.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	Timm Stephen J.	0001225208-21-002075.pdf View HTML 0001225208-21-002075.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	Kennedy Thomas A	0001225208-21-002071.pdf View HTML 0001225208-21-002071.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	HAYES GREGORY	0001225208-21-002070.pdf View HTML 0001225208-21-

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February 10, 2021	4	Statement of changes in beneficial ownership of securities	Azevedo Roy	0001225208-21-002072.pdf View HTML 0001225208-21-002072.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	Kremer Wesley D	0001225208-21-002074.pdf View HTML 0001225208-21-002074.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	Wood Michael J	0001225208-21-002080.pdf View HTML 0001225208-21-002080.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	Calio Christopher T.	0001225208-21-002073.pdf View HTML 0001225208-21-002073.xls
February 10, 2021	4	Statement of changes in beneficial ownership of securities	WILLIAMS DANTAYA M	

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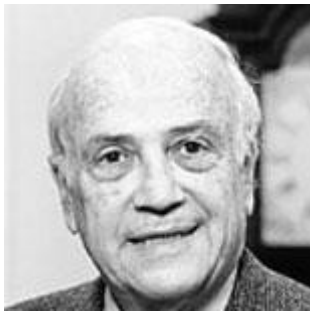

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Raymond S. Stata

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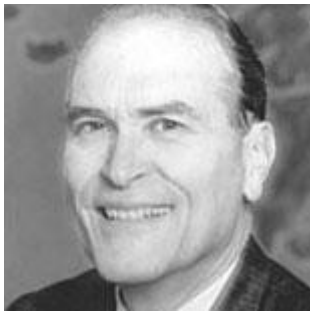

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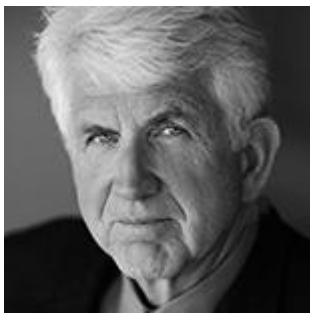

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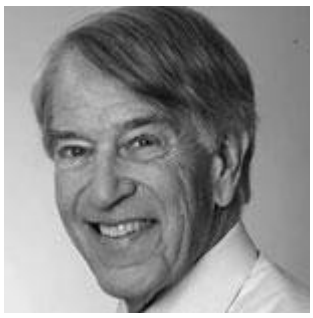

Roger C. Altman

Jeffrey L. Silverman

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Chairs of the Corporation

Prior to 1930, the President of the Institute acted as presiding officer of the Corporation. For various periods since then, the Corporation has chosen a presiding officer from among its members.

For more information about the history of MIT, please visit the Institute Archives.

Diane B. Greene

Chair, 2020-present

Robert Millard, '73

Chairman, 2014-2020

John S. Reed, '61

Chairman, 2010-2014

Dana G. Mead, '67

Chairman, 2003-2010

Alexander V. d’Arbeloff, '49

Chairman, 1997-2003

Paul E. Gray, '54

Chairman, 1990-1997

David Stephen Saxon, '41

Chairman, 1983-1990

Howard Wesley Johnson HM

Chairman, 1971-1983

James Rhyne Killian, Jr., '26

Chairman, 1959-1971

Vannevar Bush, '16

Chairman, 1957-1959

Karl Taylor Compton HM

Chairman, 1948-1954

Samuel Wesley Stratton HM

Chairman, 1930-1931

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https://corporation.mit.edu/membership/all-members/former-corporation-members

https://cee.mit.edu/faculty/

https://cee.mit.edu/people/leadership/

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Department Head; JR East Professor; Professor of Civil and Environmental Engineering; Core Faculty in Institute for Data, Systems, and Society (IDSS); Principal Investigator, Laboratory for Information, and Decision Systems (LIDS)

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Professor of Civil and Environmental Engineering; Postdoctoral Affairs Faculty Officer

Colette Heald

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Saurabh Amin

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Moshe E. Ben-Akiva

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Lydia Bourouiba

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Markus J. Buehler

Jerry McAfee (1940) Professor in Engineering; Professor of Civil and Environmental Engineering

Oral Buyukozturk

George Macomber Professor in Construction Management; Professor of Civil and Environmental Engineering

Josephine V. Carstensen

Assistant Professor of Civil and Environmental Engineering

Penny Chisholm

Institute Professor

Tal Cohen

Associate Professor of Civil and Environmental Engineering; Associate Professor of Mechanical Engineering

Otto Cordero

Associate Professor of Civil and Environmental Engineering

David L. Des Marais

Walter Henry Gale (1929) Career Development Professor; Assistant Professor of Civil and Environmental Engineering

Herbert Einstein

Professor of Civil and Environmental Engineering

Elfatih Eltahir

H.M. King Bhumibol Professor; Professor of Civil and Environmental Engineering

Dara Entekhabi

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Associate Professor of Civil and Environmental Engineering

Admir Masic

Associate Professor of Civil and Environmental Engineering

Darcy McRose

Assistant Professor of Civil and Environmental Engineering

Caitlin Mueller

Associate Professor of Civil and Environmental Engineering; Associate Professor of Architecture

Heidi Nepf

Donald and Martha Harleman Professor of Civil and Environmental Engineering; MacVicar Faculty Fellow

John A. Ochsendorf

Class of 1942 Professor; Professor of Architecture; Professor of Civil and Environmental Engineering; MacVicar Faculty Fellow

Desiree Plata

Gilbert W. Winslow (1937) Career Development Professor in Civil Engineering; Associate Professor of Civil and Environmental Engineering

Serguei Saavedra

Associate Professor of Contemporary Technology; Associate Professor of Civil and Environmental Engineering

Yossi Sheffi

Elisha Gray II Professor; Professor of Civil and Environmental Engineering; Director, Center for Transportation and Logistics

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César Terrer

Assistant Professor of Civil and Environmental Engineering

Franz-Josef Ulm

Professor of Civil and Environmental Engineering; Faculty Director, Concrete Sustainability Hub

Andrew Whittle

Edmund K. Turner Professor in Civil Engineering

John Williams

Professor of Civil and Environmental Engineering; Postdoctoral Affairs Faculty Officer

Cathy Wu

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Jinhua Zhao

Associate Professor of Transportation and City Planning; Director, MIT Mobility Initiative