



TECHNOLOGY FOR REAL WORLD SOLUTIONS



Corporate Overview

ISL is an employee-owned technology-development and products-manufacturing company that solves the toughest challenges, advances the state-of-the-art, and delivers effective, real-world solutions that propel customer success and provide a safer, brighter future in the national security, energy, and manufacturing sectors. For forty years ISL has executed expert analysis for and designed, engineered, and produced trailblazing products for customers around the globe in digital engineering for high fidelity modelling and simulation, commercial nuclear, naval nuclear-power propulsion, and code and software development for demanding, high risk environments. We manufacture the only exportable, proven passive sonar intercept in the world, deployed on several nations' submarines and with broader applications, and we produce MILSPEC and high-quality products for aerospace, submarine, and other uses. ISL's technical excellence is recognized by many patents and a vibrant intellectual property portfolio, three Phase III SBIR awards, and three AFWERX awards, one of which led to a further Phase III. In fact, ISL literally wrote the books on cognitive radar and on risk management systems for space flight.

CORE CAPABILITIES

Our dedicated team of scientists, engineers, and mathematicians, most with Ph.Ds., have fielded special applications, customer-customized products, and commercial products in critical technology fields:

RADAR & COGNITIVE SYSTEMS

Contextual "Awareness" | Advanced Embedded Computational & Artificial Intelligence (AI) | Active Environmental "Probing" (Targets, Clutter, Interference) | Electronic Warfare (EW)

AI & NEUROMORPHIC COMPUTING

Neuromorphic Computing & Chips Architecture | AI Training | Unmanned Aerial Systems (UAS) Low-Power, Lightweight Detect & Avoid Systems | Light-Weight Electrooptical—Infrared Sensors (EO/IR) | Advanced Data Fusion Algorithms

DOD ACCEPTANCE TESTING

Patented AI Acceptance Methodology for DoD AI Solutions Using Accepted Statistical-Based Methodology

HIGH-FIDELITY MODELLING & SIMULATION (MOD & SIM)

Radio Frequency (RF) | EW | Site-Specific Terrain, Land Cover, Background And Civilian Targets, Sensor-Platform Interaction, Receive-Chain Errors, Sensor Motion | Predict Real-World System Performance (without costly prototyping and data collection)

AIRCREW TRAINING & MISSION PLANNING

Real-World, High-Fidelity Aircrew Training Systems For RF, Radar, Electronic Intelligence (ELINT), Signals Intelligence (SIGINT), Communications Intelligence (COMINT), and EW (Fly Anywhere In The World) | Mission Planning | B-1 "Bone" Trainer

NUCLEAR REGULATORY SERVICES

Nuclear Facility Licensing & Review | Nuclear Safety Analysis Regulatory Framework Development | Digital Modelling Code and Software Development and Maintenance | Nuclear Quality Assurance (NQA)

NUCLEAR SYSTEMS ANALYSIS

Thermal Hydraulics | 3-D Neutron Kinetics | Radiological | Fuel Performance | Design Support Analysis | Scaling and Assessments

OUR CUSTOMERS



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Advancing the state-of-the-art propelling customer success

Delivering effective Providing a safer and brighter future



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Technical Excellence

CORE CAPABILITIES

ADVANCED NUCLEAR REACTOR CONCEPTS

Next Generation Advanced LWRs (AP1000, APR1400, USABWR, UKABWR, ESBWR) | Small Modular Reactors (SMR) | High Temperature Gas Reactors (HTGR) | Micro Nuclear Reactors | Versatile Test Reactor (VTR) | Space Reactor Concepts

WASTE MANAGEMENT AND TRACKING

Enterprise Software Systems for Transuranic Waste Authorization Methods for Payload Control (TRAMPAC) Standards (currently in use) | CH-TRAMPAC, RH-TRAMPAC, TRUPACT-III enforcement | Characterization and Certification Data Management and Approvals | Payload Creation and Optimization | Overpack Creation and Optimization | Disposal and Emplacement Tracking | Shipment Management and Tracking

NUCLEAR HIGH-FIDELITY MOD & SIM

High Fidelity Mod & Sim for Nuclear Applications | Code Design, Programming, Model Development & Debugging | Verification and Validation | Development Assessment | NQA-1 Configuration Control, Automation & Documentation

NUCLEAR & SPACEFLIGHT RISK MANAGEMENT

Risk Management Analysis and Implementation | Tools and Services (Safety and Reliability Analysis) | Safety and Reliability Assessment Process Development | Risk-Informed Decision Making (RIDM) | Continuous Risk Management (CRM) | Accident Precursor Analysis (APA) | Probabilistic Risk Assessment (PRA)

HIGH QUALITY, MILSPEC MANUFACTURING

Mission critical electronic hardware | Submarine sonar and Circuit breaker electronics | Harness and cable assemblies for fixed wing aircraft, helicopters & unmanned airships | Radio and DoD antenna systems | Class 1 NSA crypto equipment | Aviation vibration diagnostic systems | Spectrum analyzers | Machinery vibration diagnostic systems | MIL-STD-167 | MIL-STD-461 | MIL-STD-704 | MIL-STD-810 | MIL S 901D | MIL-STD-1275 | ISO9001:2008 (since 1994) | AS9100C | IPC-A-610, IPC/WHMA-A-620 | J-STD-001 (class 3) | Space Applications Hardware (IPC J-STD-001 Add.) | Certified IPC Specialists (CIS)

CONTRACT VEHICLES



CERTIFICATIONS



ISL FACTS

Incorporated: 1982 (Delaware)
Chair & Founder: John E. don Carlos
President & CEO: Joseph R. Guerici, Ph.D.
Facilities: Poway, CA; Tysons Corner, VA; Idaho Falls, ID; Beavercreek, OH; Bloomsburg, PA
Facility Clearances: Top Secret

NAICS

541330 -- Engineering Services
541715 -- Research and Development in the Physical, Engineering, and Life Sciences
541511 -- Custom Computer Programming Services
541990 -- All Other Professional, Scientific, & Tech Services



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PRODUCTS



ISL's RFView® is an advanced, site-specific RF simulation and analysis tool that offers highly accurate characterization of complex RF environments. It incorporates ISL's industry-leading bistatic RF phenomenology engine that characterizes target returns, direct-path signal, ground-scattered signal (clutter for radar), direct-path signals from interferers, and ground-scattered interference signals. RFView® is an open-air RF propagation modeling and simulation environment that government and commercial customers worldwide have used for 30-years to support advanced development projects in system analysis, test planning, high-fidelity synthetic data generation, and signal-processing algorithm development. RFView® is available both via the cloud (<https://rfview.islinc.com/RFView/login.jsp>) or as a standalone application ideal for sensitive or classified applications.



RFView®—Training allows pilots or operators to train in realistic environments that capture the key coupling between a pilot or an operator and radar or RF performance. It is a simulator that accurately recreates the radar or RF environment that a pilot or operator would experience flying anywhere in world against all the threats that an adversary might interpose in the real world. RFView®—Training's advanced 3D scene databases, coupled with advanced target-radar or RF models and EW systems, are a powerful training tool to enhance readiness and mission success.



ISL's RFView®—Real Time Electromagnetic Environment Simulator (RTMES) allows for real-world flight-system testing of hardware—even the most classified single- or multi-channel Ground Moving Target Indicator (GMTI), Airborne Moving Target Indicator (AMTI), or Synthetic Aperture Radar (SAR) radars or ELINT or EW systems—without leaving the laboratory or disclosing wave forms or other sensitive data. RTMES incorporates ISL's worldwide terrain database so that you can put your hardware in the loop (HWIL) and test it under the most stressful conditions anywhere in the world, such as an adversary's capitol or sensitive facilities.



ISL is dedicated to ensuring our customers get precisely the RFView® application they require. Any of our RFView® family of products can be customized for individual needs or specific challenges. ISL also provides support for these products, including installation and setup in any environment, whether classified, sensitive, or unclassified; technical training and tutorials (in-class or distance-learning); support or "help desk;" maintenance; and hardware support.



ISL's Passive Sonar Intercept (PSI) is the only exportable, proven passive sonar technology. It is a state-of-the-art sonar sensor that can be used in many underwater applications to detect and classify in real time active sonars and weapons, among other acoustic threat signals, permitting rapid tactical decisions. PSI combines ISL's proprietary codes with commercially-available, USA-made products, including the servers, switches, cabinets, and cables, tested to MIL-STD-810.



The Symbolic Nuclear Analysis Package (SNAP™) is the leading nuclear modelling, simulation, and digital-engineering tool. SNAP™ provides a graphical user interface (GUI) allowing reactor designs to be digitally modelled and their performance, predicted through all the leading nuclear-analysis codes, such as RELAP, PARCS, and TRACE, to be visualized in real time, including large- and small-break loss of coolant accidents (LOCA), fuel performance, and cooling-system performance. SNAP™ is a Java based and built on the Common Application Framework for Engineering Analysis (CAFEEAN). It simplifies the nuclear analyst's task by providing a flexible framework for creating and editing input for engineering analysis software, such as the nuclear-analysis codes, as well as extensive functionality for submitting, monitoring, and interacting with that analysis software. SNAP™ also includes a rich set of novel features through a "plug-in" based architecture that permits it to interface with nuclear-analysis codes, user-specific versions of those codes, and virtually any reactor design. The plug-in architecture also permits ISL to devise user-specific tools efficiently and cost-effectively. SNAP's™ 25-year history, accuracy, nuclear-grade quality, and technical excellence of its ISL-development team have made it the premier analytic tool for government agencies, defense contractors, domestic commercial nuclear users, and international agencies and commercial nuclear users.



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ISL's iCLEAR technology (Intelligent Control for Environmentally Advanced Reactors) (Patent Pending) efficiently regulates, controls, and delivers excess nuclear heat energy to high-heat industrial applications, such as carbon sequestration, desalination, hydrogen production, graphene manufacture, and other industrial processes, at the same time that nuclear reactor generates clean nuclear electricity, thus doubling the contribution of that reactor to CO2-free clean energy production. iCLEAR uses several real-time inputs through a proprietary algorithm to anticipate changes in electrical-grid demand, manage load balance maneuvers, and optimize transfer of heat output to the most economically valuable activity, such as electricity production, commercial products, or both. iCLEAR integrates into plant operations outside the "nuclear island," thus minimizing regulatory impact for existing or future-build plants, especially current small modular reactors, such as NuScale's NRC-approved VOYGR, and the next wave of small, advanced nuclear reactors. ISL also provides the engineering, technical development, and design services for systems and software to implement iCLEAR, including modelling and simulation, safety analysis, customization and optimization of the iCLEAR controller, and licensing and regulatory support.



ISL's R-Matrix™ software helps project teams translate project requirements into project tasks that can be easily tracked to completion. Its toolset helps each project team member fulfill their responsibilities to execute project requirements and contribute to a winning project with modules for requirements management, integrated requirement change control tracking, design element management, test case management, build management tracking, integrated issue management across all modules, real time reporting, and traceability matrix reporting. R Matrix™ also provides tools to manage action and request logs, bundle issues into work packages, create a wide range of reports, automate email notifications, and create and manage a project document repository. It was built to satisfy the needs of building software and other products in a nuclear quality assurance (NQA)-governed environment, and it has been used for projects governed by other rigorous quality regimes, such as MILSPEC. R-Matrix™ may also be calibrated on a graded basis for other, less rigorous regimes.



ISL's unparalleled QuARTIC® (Qualified Automated Reporting Tool for Inputs and Calculation notebooks) automates the propagation of facility design information from birth through to the completion of a qualified code input model and companion calculation notebook. QuARTIC® also documents that model's and notebook's verification and reference to the design data, providing an efficient and cost-effective means of preparing quality-controlled input models and documentation and aiding with NQA-1 compliance. Its features include automated generation of consistent input model and documentation from a single set of reference data; simple reference data representation using MS Excel®, document templates in LaTeX with symbolic calculations for equations, Lua scripting for processing equations, generated input models for RELAP5 or TRACE, and PDF calculation notebook.



ISL's GraviSense™ is a non-invasive coolant level monitoring sensor for nuclear reactors. It measures the coolant level to 3 cm accuracy using super-sensitive gravimeters that sense the mass distribution of the coolant and enabling it to detect LOCAs and other less severe off-normal events. GraviSense™, unlike conventional invasive sensing methodologies, such as pressure gauges, does not compromise safety or reliability because it requires no penetrations of the pressure vessels; its instrumentation and piping is located entirely outside the vessels. And GraviSense™ enhances operability, efficiency, and cost-effective operations because maintenance, including complete replacement, can be conducted without disturbing or opening the pressure vessels. Its sensors, moreover, can be replaced one at a time without interrupting the power cycle.

For over 25 years, ISL has been producing custom cable harnesses, cable assemblies, and a wide range of electrical assemblies. Our commitment to quality has generated a track record where we have delivered over 40,000 complex cable and harness assemblies with zero return and a 100% customer satisfaction rate.

ISL is an Equal Opportunity Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, or protected veteran status and will not be discriminated against on the basis of disability.



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