IMAGINE THE ART OF THE POSSIBLE IN OUR ADVANCED TECHNOLOGY LABS

The Noblis Innovation and Collaboration Center (NICC) is home to cutting-edge research projects that enable our clients to achieve their critical missions

The NICC, located at our Reston, Virginia headquarters, is where complex problems are explored to create practical, forward-thinking, sustainable solutions. It consists of laboratory spaces and collaborative work areas where our employees and clients can prototype, analyze, model, simulate and showcase results and new ideas. We offer a suite of services and tools for high performance computing and advanced data analytics as well as development environments through a secure science and technology cloud. Our labs demonstrate cutting-edge technologies such as 3-D printers for rapid component prototyping, synthetic tissue generators for advancing health research, and blockchain technology enabling autonomous vehicles to operate safely in air, space, water and ground domains, and more.
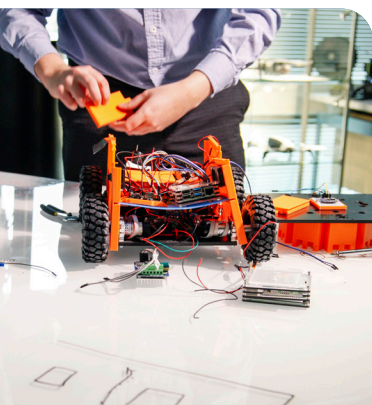
LIFE SCIENCES AND BIOINFORMATICS

Our experts are developing a synthetic tissue model of the human gut microbiome to study warfighter health and performance. We are also refining a portable DNA sequencing and analysis platform that puts us at the forefront when responding to time-critical situations, developing data encryption and storage algorithms using DNA as the storage medium and determining the existence of engineering in genetic sequences uploaded to public repositories to identify opportunities to preserve data integrity.

TRANSPORTATION AND TELECOMMUNICATIONS

Experts in the Transportation and Telecommunications Lab have created test beds and simulations to further the state-of-the-art in both of these areas. Our telecom experts have established an Information and Communications Technology (ICT) Test Bed that leverages advances in Software Defined Networks (SDN) and Network Functions Virtualization (NFV) as well as wireless technologies (in collaboration with the Internet of Things (IoT) Lab) to test new architectures and concepts. This test bed allows us to study potential challenges and assess innovative solutions, ensuring the adoption of this technology for public safety, national security and emergency preparedness agencies will be successful. Our transportation experts are modernizing the air traffic environment through a sophisticated suite of tools, datasets, custom code libraries and high performance computing environments. These allow us to deliver expert benefits and operational analysis for air traffic systems that enable the modernization of America's air transportation system, known as NextGen.

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AUTONOMY

In the Noblis Autonomy Lab, we are exploring the concept of autonomous vehicle interoperability through the Noblis Pieces of Eight (Po8) system. This system enables nearby connected machines to share situational awareness of obstacles and threats projected over time. Earned trust accounting and reporting for each individual machine using blockchain technology ensures transparency, accuracy, and security of the Po8 system. This interoperability and trust permits high-speed motion and coordinated actions which are impossible without advance knowledge of all the localized actions. This research concept has won a number of awards and continues to be enhanced and built upon.

MACHINE LEARNING (ML)

Experts in the ML Lab improve analyst productivity by designing, implementing and evaluating full stack software solutions using Agile and DevOps practices with a backbone of modern computer vision and ML algorithms. These solutions isolate important insights that allow analysts to better organize, explore and understand massive amounts of data. Our experts focus on developing and deploying analytic tools within existing operational environments and lowering client risk of technology obsolescence, vendor lock-in, and user retraining. Our research and engineering improves our clients' operational understanding and enables them to fully realize ML solutions to inform program strategies.

FORENSICS

Working with government agencies in the areas of criminal justice and standards and technology, Noblis conducts studies to assess the accuracy and reliability of forensic examiners in the latent print, handwriting, footwear, firearms and bloodstain disciplines. These studies determine the admissibility of forenic evidence in court. The results allow us to assist in the establishment of standards, policies and procedures benefitting the forensic and legal community, as well as our clients.

CYBER SECURITY AND CLOUD SOLUTIONS

Cyber threats are pervasive and sophisticated – dangerous needles hiding in exponentially growing forests of data that humans cannot analyze on their own; false positives waste analyst resources while false negatives endanger networks. Our experts in cybersecurity, ML and data science create advanced technologies and analytics that help analysts to accurately and rapidly identify and respond to threats in both real-time and forensic data. We are also improving cybersecurity through the development of new advanced techniques for zero-day attack detection, assured Artificial Intelligence/ML, virtualization and cloud security, drone security and insider threat detection. Our novel research advances the state-of-the-art in finding, stopping and automatically responding to the most difficult to detect threats.

INTERNET OF THINGS (IoT)

Industrial Control Systems (ICS) maintain operations of critical infrastructure across the nation. These sytems are increasingly vulnerable to attacks due to legacy systems and integration with wireless technologies. Our experts in the IoT Lab have created an ICS Test Bed to research and develop new methods to detect malicious behavior, protect systems from attacks, and provide secure, remote access. This research has expanded to include a drone IoT test bed that further explores the role of wireless connectivity and ICS.

ABOUT NOBLIS

Noblis is a dynamic science, technology and strategy organization dedicated to creating forward-thinking technical and advisory solutions in the public interest. We bring the best of scientific thought, management and engineering expertise together in an environment of independence and objectivity to deliver enduring impact on federal missions.

Noblis works with a wide range of government clients in the defense, intelligence and federal civil sectors. Together with our wholly owned subsidiary, Noblis ESI, we tackle the nation's toughest problems and drive the success of our clients' most critical missions.

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