Stottler Henke

Mission

Stottler Henke Associates, Inc. applies cognitive modeling, artificial intelligence, machine learning, and other advanced technologies to solve problems that defy solution using traditional approaches.

Solutions

Planning and Scheduling

Stottler Henke's intelligent scheduling solutions solve our customers' most difficult scheduling problems by applying expert knowledge with sophisticated algorithms.

For example, our MARS command and control system enables the US Space Force to schedule Satellite Control Network communications more efficiently to command, control, and maintain the health of more than 170 Earth-orbiting satellites.

Aurora/AMP, in service for 18 years at NASA's Kennedy Space Center, automatically generated short- and long-term schedules of ground-based activities that prepared and refurbished Space Shuttles before and after each flight.

Stottler Henke employs advanced user interfaces, data visualization, and AI planning to develop highly effective interactive and automated planning systems.

For example, the ViPER family of Navy mission planning systems provides a highly graphical user interface that enables planners to enter and review assumptions and decisions in space and time, quickly and intuitively. Integrated decision aids acquire, integrate, analyze, and display tactical and environmental data automatically to accelerate planning and reduce errors.

Autonomy

Autonomous systems carry out tasks and pursue goals with limited or no human supervision by monitoring the environment, maintaining situation awareness, generating and executing plans, and responding to problems and opportunities.

For example, our Probabilistic Road Map Path Planner plans highly aggressive, collision-free routes for aircraft in real time to avoid simultaneous threats such as trip wires and projectiles. Our SCOUT technology controls teams of unmanned vehicle teams for tasks such as electronic warfare and surveillance.

Knowledge Management and Retrieval

Our knowledge management systems encode the experiences and reasoning ability of in-house experts as rules, models, and case bases of previously encountered situations and solutions. These knowledge repositories provide sophisticated retrieval to help companies assess situations, diagnose problems, develop plans, and design products and processes quickly and consistently.

For example, our Beacon system, developed for the Office of Naval Research, monitors tentative decisions entered by the user during planning to proactively select, retrieve, and suggest previous planning problems, solutions, and outcomes. Rapid access to this organizational experience helps to ensure that planning decisions achieve desired results more consistently and avoid unintended effects.

Developed for IARPA, InfoTracker employs a unique text indexing scheme to provide fast and scalable detection of meaningful text overlaps between potentially vast document collections. The InfoTracker system and API can help analysts, educators, and authors identify intelligence leaks, detect plagiarism, redact documents, and recognize other inappropriate uses of sensitive text materials.

Education and Training	Students learn concepts and skills more quickly when they receive one-on-one instruction. Stottler Henke develops intelligent tutoring systems that provide the benefits of one-on-one training — automatically and cost-effectively. These systems encode the subject matter and teaching expertise of experienced instructors, using artificial intelligence (AI) software technologies and cognitive psychology models.
	For example, our Tactical Action Officer Intelligent Tutoring System (TAO ITS), developed for the Navy, trains TAO students by immersing them in simulated tactical scenarios in which they employ sensors and weapons and communicate with speech-enabled automated teammates. An automated software tutor monitors and evaluates what students say and do in order to identify knowledge and skill gaps and provide highly specific hints and instructional feedback.
Machine Learning and Data Analytics	Stottler Henke uses machine learning to detect and classify objects and events, based on models computed from past data. Our advanced data analytics employ innovative methods for deriving, integrating, and communicating information.
	For DARPA, we are creating biosurveillance capabilities that learn to assess the pathogenic potential of novel bacteria in order to combat bioterrorism.
	The Automated Maritime Entity Recognition (AMER) system, developed for the US Navy, classifies ships using inverse synthetic-aperture radar (ISAR) and electro optical/Infrared (EO/IR) imagery for automated target recognition and situation awareness.
	Our ADTM system, developed for NASA, monitors system health variables over time and automatically develops models of normal and abnormal behavior in order to detect and classify system anomalies automatically.

Products

Aurora™	The Aurora scheduling tool solves complex problems more effectively by encoding and applying sophisticated scheduling knowledge and decision-making rules, along with complex constraints and resource requirements. This knowledge-rich approach enables Aurora to combine human expertise with mathematical algorithms to generate superior schedules.
	In a study conducted by The Boeing Company, Aurora managed resources more efficiently than any other software Boeing could identify, including software that Boeing had developed and maintained specifically for managing its own operations over almost two decades. Compared to Primavera, Aurora reduces turnaround time by 20%. Compared to Microsoft Project, Aurora's schedules are 30% shorter.

SimBionic®   The open source SimBionic toolkit enables rapid specification and efficient execution of intelligent agent behaviors that sense, assess, and act in real-time. SimBionic provides a graphical authoring tool to specify intelligent behaviors easily by drawing and configuring flowchart-like diagrams. This behavior logic can call software libraries to access databases and interact with external systems and user interfaces. Behaviors can run in parallel to control many simulated entities or concurrent processes. SimBionic is used to create simulated teammates and adversaries, threat detection and alerting systems, intelligent monitoring and control, and intelligent tutors that monitor student actions, assess performance, and provide instructional feedback.

DataMontage™   The DataMontage data visualization tool displays information-dense arrays of graphs and timelines to help analysts see significant data patterns spanning many variables, individuals, and subgroups. Synchronized graphs and timelines zoom and scroll in unison, so analysts can scan the data, spot interesting time periods, and then drill down for details. A rich API enables fine control over the graphs' layout, appearance, and interactivity. Example applications include military planning, unmanned vehicle health monitoring and analysis, signal data analysis, clinical data review, and human physiological studies.

Customers   Companies in technology and capital-intensive industries such as aerospace, defense, manufacturing, air transportation, education, and health care.

Government agencies including the US Department of Commerce, Department of Defense, Department of Education, Department of Energy, National Aeronautics and Space Administration, National Institutes of Health, and the National Science Foundation.

Aurora software customers include The Boeing Company, Mitsubishi Heavy Industries, Bombardier Learjet, Spirit AeroSystems, General Dynamics Electric Boat, Korea Aerospace Industries, Alaska Airlines, Massachusetts General Hospital, Clipper Wind Power, Los Alamos National Laboratory, NASA, US Air Force, US Space Force, and the US Navy.

Our Approach   At Stottler Henke, we take AI to be the mimicking of human thought processes to solve useful problems. We have spent decades observing and interviewing experts in many areas in order to understand and model how they assess situations and solve problems. Using our knowledge of diverse AI technologies, we encode this expertise in software and combine them with advanced algorithms, user interfaces, and data management to automate these cognitive processes in real-time. Our technology consulting, feasibility studies, and rapid prototypes identify and validate promising approaches. Our software development, implementation, and technology transfer services ensure the successful deployment of effective, practical, long-term solutions.

Recognition   In 2012, at a White House ceremony, Stottler Henke was one of 18 small businesses and six individuals who received the prestigious Tibbetts award for the

critical role they played in research and development for the government and for their success driving innovation and creating new jobs.

U.S. Government agencies designated eleven Stottler Henke systems as Small Business Innovation Research (SBIR) success stories.

Four Stottler Henke systems have been featured in *Spinoff*, NASA's showcase of successful spinoff technologies for scheduling, training, and online search.

Stottler Henke was featured in a NASA *Hallmarks of Success* video profile for its work developing and commercializing advanced scheduling and training systems.

Military Simulation and Training (MS&T) magazine named Stottler Henke as one of two Small Business of the Year finalists, recognizing its AI-based software solutions for intelligent, individualized, military training.

Military Training Technology (MT2) magazine named Stottler Henke a "Top 100" company making an impact on the military training industry for 13 years. MT2 also awarded Stottler Henke a Blue Ribbon, recognizing its industry-leading innovation.

Stottler Henke received an *Excellence in Learning* award from Brandon Hall for its innovative SimBionic technology.

Founded	1988
Employees	60

Leadership		
	Andrea Henke	Co-Founder and Director
	Richard Stottler	Co-Founder and Director
	Bridge Eimon	Group Manager
	TJ Goan	Group Manager
	Randy Jensen	Group Manager
	Annaka Kalton	Aurora Product Architect
	Jeremy Ludwig, PhD	Group Manager
	James Ong	Group Manager
	Rob Richards, PhD	Head of Strategy & Business Development
	Sowmya Ramachandran, PhD	Director of Intelligent Tutoring Systems

Ownership	Private

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Media Contact

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