

## **Patricia A. Craig-Hart**

### **WORK HISTORY:**

2000-Current: Cyberneutics, Inc.  
1997-2000: Oracle Corporation  
1991-1997: Lynne Gilfillan Associates  
1987-1991: Advanced Decision Systems  
1983-1987: The BDM Corporation

### **Education**

M.S., Electrical Engineering and Computer Science, George Washington University  
B.A., Psychology and Philosophy, Vanderbilt University (Magna Cum Laude)

### **Current Projects**

Collaborative Automated Planning Environment for Reconstruction and Stabilization (CAPERS): a U.S. Army Corps of Engineers STTR effort to create a trans-disciplinary approach to Reconstruction and Stabilization (R/S) operations by developing tools to support an enterprise-wide planning culture that dynamically assembles and maintains an R/S community of interest encompassing U.S. agencies, allies, international and non-governmental organizations. Cyberneutics is teamed with Georgetown University on this STTR.

Conflict Modeling, Planning, and Outcome Experimentation (COMPOEX): a DARPA program that is developing automated tools to assist the commander and staff in generating, assessing and understanding the consequences of political, military, economic, social, information operations, and infrastructure (PMESII) effects, and constructing and evaluating plans that are based on the impact of multi-dimensional effects and the interaction among effects. Cyberneutics software will apply over the full continuum of near-simultaneous missions required in a campaign, to include major combat operations and various security, stability and reconstruction operations.

Geopolitical Analysis and Modeling Environment (GAME): developing methodologies and software tools to support force structure analysts at the U.S. Navy's Dahlgren Surface Warfare Center in predicting regional political, economic, and military trends. A key aspect of GAME is the development and automation of methodologies for assessing trends associated with the emergence and maturation of asymmetric threats in regions of importance to U.S. national security.

Scalable Template Architecture for Network Data Sharing (STANDS): an Air Force Research Laboratory project to develop a human-computer division of labor that combines network hardware, application software, and warfighter tactics, techniques and procedures for minimizing information latency while safeguarding operational and intelligence information from unauthorized disclosure. On the information technology side, STANDS is a template-based architecture for sharing just enough data, but no more, between diverse coalition members in a time dominant environment. This template supports plug and play integration of COTS and GOTS network and security functionality and scales to encompass separate, simultaneous communities of interest across common network transport where the owner of the information retains access control. On the human process side, STANDS concepts of operations and their component TTPs are emergent phenomena, rather than restrictive and inefficient planning artifacts developed for specific missions and then modified haphazardly in time of crisis to suit particular circumstances.

Coalition Shared Intelligence Network Environment (COSINE): participating in an Advanced Concept Technology Demonstration led by the NATO Consultation, Command and Control Agency. COSINE's goal is to enable coalition intelligence analysts to work within their collective security domains for protection and assurance but still share intelligence products with users in other security domains. Cyberneutics is developing scenarios and use cases that enable coalition interconnection, dynamic information security, cross-coalition information sharing and discovery, collaboration and shared production, and CONOPS and TTPs for building an integrated intelligence picture amongst coalition members.

Collaboration and Analyst/System Effectiveness (CASE): a multi-year project sponsored by the Intelligence Community to develop cognitive aids that help temporary teams of analysts and decision makers rapidly and fully comprehend complicated and uncertain situations by creating dynamic, adaptable, peer-to-peer collaborative networks. Cyberneutics is supplying scenarios, use cases, and functionality requirements to the CASE design and development process. We are also involved in implementing, testing, and validating advanced data discovery, information sharing and collaboration functionality for multi-agency networks.

Bandwidth Agile Sensor Swarm (BASS): supporting the development of Bayesian computational inference techniques to 1) perform distributed, autonomous, and incremental situation assessment and 2) enable robotic swarm intelligence to achieve locationally flexible collaboration amongst the U.S. Navy's Expeditionary Sensor Grid elements based on diverse and evolving target behavior. Target behavior analysis includes asymmetric littoral battlespace threats to U.S. naval forces.

## **EXPERIENCE:**

*Cyberneutics: June 2000 - present - Position: Senior Scientist/Owner*

### **Program Management**

Ms. Craig-Hart provides program management for a number of Cyberneutics customers. For example, she is currently the Principle Investigator on both the GAME and STANDS SBIR efforts.

### **Business Development**

Since joining Cyberneutics, Ms. Craig-Hart has provided business development support to Cyberneutics as well to many of our customers. This support includes:

- Technical and marketing support for over 50 proposals
- Evaluation and support for upgrades to corporate web sites
- Productization planning and support including market analysis and identification of potential partners.

### **Application Development Support**

Ms. Craig-Hart provides a wide variety of application development support including:

- The design and development of application architectures
- The design and development of application databases
- The design and development of demonstration prototypes
- Evaluation of the feasibility and utility of alternative technical approaches
- Recommendations related to adoption of state-of-the-art solutions
- Critique for all phases of application development from design through testing

***Oracle Corporation, Reston, VA: November 1997 to June 2000 - Position: Senior Sales Consultant***

**Enterprise Portal Support**

While at Oracle, Ms. Craig-Hart supported the development of a variety of enterprise portals for solution demonstrations. This support included developing customer/market requirements, translating them to capabilities, identifying and gathering relevant example materials and data, generating a design and building the demonstration portal itself. Example domains include:

- USTRANSCOM (Joint)
- SPAWAR (Navy)
- EUCOM (Coalition)
- Naval/Marine Corps Intranet (Navy/Marines)
- Federal Health Care (Federal)
- Recruiting (Navy)
- Program Management (Army)
- eLearning (all services)
- Community Management (all services)
- Helping with others from our group such as the Justice portal.

**Learning Solutions Support**

- Supported with the initial Oracle Learning Architecture (OLA) and continued to be involved during its rearchitecture into the iLearning product.
- Worked with training content partners to convert their courseware to the Oracle format and build demonstrations.
- A member of the iLearning Customer Advisory Board working closely with the iLearning developers in Redwood Shores.

**Partner Support**

- List of partners includes CSC, EDS, SAIC, Lockheed, TRW, and many others on both programs and joint marketing.
- Specifically, worked CSC on the Naval/Marine Corps Intranet proposal effort to include Oracle base products, OID, and WebDB.
- Worked with CSC and Camber on the Army Distance Learning XII effort, both of which were selected as winning teams.

**Federal Program Support**

Ms. Craig-Hart was the coordinator for all Federal program pre-sale activities. For each federal program start, she helped support a virtual team of technical resources to answer Requests for Information and respond to Requests for Proposals. This support included:

- Decomposition of the RFI/RFP requirements
- Identifying the Oracle solution
- Putting together and monitoring the work plan
- Writing significant parts of the technical response
- Building demonstrations

*Lynne Gilfillan Associates, Fairfax, VA: February 1991 to October 1997 - Partner/Senior Scientist*

**Business Development**

Ms. Craig-Hart was responsible for business development in both the DoD and the Intelligence Communities, and commercial product development. Her accomplishments include:

- Clientele base expansion and diversification from one organization into a business area of a dozen different organizations
- 100% win rate on non-SBIR competitive proposals
- 100% win rate on Phase I SBIR proposals and successfully transition of all of Phase I SBIRs into Phase I
- Successful capture and negotiation of 10 sole source contracts.
- Negotiation and execution of contracts resulting in high profit margins (18% annual profit on sales in 1996)
- Consistent follow-on awards despite Intelligence and Defense Communities reorganization and downsizing (e.g., the National Imagery and Mapping Agency (NIMA), the Central Intelligence Agency (CIA), and USAF Aeronautical Systems Command (ASC), etc.)
- Major contributor to LGA's annual 80% growth rate
- Supported all aspects of the business including contract negotiations, cost proposals, audits, forward pricing, facilities, personnel, and security

**Evaluations**

While at LGA, Ms. Craig-Hart provided extensive evaluation support to the National Exploitation Laboratory (NEL) of the National Photographic and Interpretation Center (NPIC) now a part of NIMA. Evaluations included:

- A three-month evaluation of the MARS prototype workstations built by SAIC, TASC, and others
- Formal evaluations of COTS products that were being considered for NPIC personnel including generation of the requirements, identification of the test cases, and conducting the evaluations with selected personnel as the subjects
- Creating and running various surveys including employee satisfaction and training courses evaluations

**Applications Development**

Also while at LGA, Ms. Craig-Hart supported the development of a strategic planning application, called Plan\*IT.

- Developed the Plan\*IT concept and wrote the software for a feasibility prototype.
- Identified customers in the DoD and Intelligence and organized a development consortium
- Supported the initial client base with concepts of operations, site environment surveys, software design and development, installations, and training. Plan\*IT IOC functionality includes organizational process/plan integration; customized progress metrics generation; propagation of priorities, risks, and funding; and a reporting environment integrating third party COTS (OLE, DDE, and APIs into Word, Excel, Project) and GOTS tools. Technologies employed include a spiral development paradigm, a multi-dimensional

database structure layered on a relational database foundation, an object-oriented graphical user interface, on-line analytical processing, and expert system rules for propagation

- Broadened post-IOC Plan\*IT customer base to include customers from DMA (now NIMA) and Air Force acquisitions (formerly ASC/XR). Expanded Plan\*IT functionality includes a Web-based interface that uses a combination of HTML, CGI, ActiveX, and JAVA to support a platform independent, two-way interface into the Plan\*IT environment
- Supported Plan\*IT customer base of 10 different organizations with a total of approximately 200 users employing it to publish technology development strategic plans, their related ongoing activities, solicitations for new proposals, surveys of customer satisfaction, and measurement of progress towards goals.
- Managed research for Plan\*IT enhancements using autonomous, intelligent agents and concept-based retrieval techniques to automatically link information from the Intelink/Internet to planning, project, and technology-related information in the Plan\*IT environment

### **Customer Liaison**

Ms. Craig-Hart maintained close relations with all clients, understanding requirements from a community perspective. She developed Concepts of Operation, built usage scenarios, performed knowledge engineering, generated and validated system, network, hardware, and software requirements, and performed numerous community database cross-walks. Her accomplishments included:

- Expansion from exploitation technology roadmaps to intelligence analyst workstations and information technology applications
- One of the principle founders and coordinator of the Community Research and Development database sponsored by the Advanced Research and Development Committee, an integrated database and toolset of advanced research and development projects from across the intelligence community that supports project tracking, integration and roll-up for Executive and Legislative Branch reporting.
- Community coordination responsibilities with the National Security Agency, Office of Research and Development, Community MASINT Office, the Community MASINT Technology Coordination Office, the Community Management Staff, the Central Imagery Office (now the National Imagery and Mapping Agency), the Non-Proliferation Center, and other classified organizations.

*Advanced Decision Systems, Arlington, VA: April 1987 to February 1991 - Senior Computer Scientist*

### **Program Manager**

Ms. Craig-Hart was responsible for building several key program involving automated tools for intelligence analysts while at ADS

- Responsible for winning and successfully converting a Phase I SBIR to a Phase II for the Flight Dynamics Laboratory at Wright Patterson
- Responsible for proposing and managing development of expert systems for intelligence analysts at the National Exploitation Laboratory, the Office of Global Issues, and the National Operations Intelligence Center

- Intelligence analysts tools developed included graphical interfaces for dynamic cockpit design and model-based reasoning applications for temporal-spatial tracking of mobile targets

### **Program Engineer and Tool Designer**

Ms. Craig-Hart performed a variety of leading edge software engineering tasks while at ADS to include:

- Requirements analysis and design for an integrated toolset to support Requirements Officers in generating collection requirements
- Generation of a detailed, object oriented design and development of an expert system that combined cartographic, terrain and feature data with a graphical interface and orbital mechanic rules for evaluating requirements and building collection tasking parameters
- Design of supporting data structures for collection requirements tools and implementation of the interface to these structures in a Sybase environment

*The BDM Corporation, VA: October 1983 - March 1987 - Computer Scientist*

**Task Leader** - Ms. Craig-Hart was the Task Leader and a primary contributor in the design and development of a classified analyst aid workstation that allowed input and interactive analysis of collection information. This information was then used to build an extensive database from which analysts could produce reports and graphical outputs and an interface that allowed automatic and manual entry/validation of data and access to a local DBMS (in INGRES).

**Programmer** - Ms. Craig-Hart designed and implemented network control code for a classified automated message monitoring system, a controller workstation that allowed the monitoring of orderwire messages from four external sources, compiled and transmit orderwire message to remote sites, communicated locally with other controllers, and maintained a duty log through an interface to the local DBMS.

### **Publications**

Hart, Douglas and Patricia A. Craig-Hart, "Reducing Swarming Theory to Practice for UAV Control", *2004 IEEE Aerospace Conference Proceedings*, May 2004.

Hart, Douglas and Patricia A. Craig-Hart, "Methods and Motives: Exploring Links Between Transnational Organized Crime and International Terrorism", U.S. Department of Justice, Document 211207, June 2005

### **CONTACT INFORMATION**

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