

# Charles J. Cohen, Ph.D.

3405 Brentwood Court • Ann Arbor, MI 48108 • 734-971-1809 • charles@umich.edu

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## Qualifications:

### Leadership

- Proven success as a corporate executive, program manager, lead engineer, and contributing team member. Project budgets ranging from \$100k to \$5M, with timelines ranging from six months to multi-year cradle to sustainment efforts.
- Twelve years of high level management and business development experience in a high-tech, cutting-edge company. Supervisor for 35 engineering and 10 support staff.
- Innovative, reliable, highly motivated, fast learner and problem solver.

### Business Development

- Developed and deployed systems for the Department of Defense. Including product conception, design, spiral development, testing, evaluation, and deployment as part of a \$6M program for the Navy, paralleled by business development and negotiations for commercial sales.
- Worked with major Primes (Harris, Ball Aerospace, LMCO, etc.) on funded contracts and business generation.
- Demonstrated ability to write proposals and win contract awards.
- Developed commercial products.
- Named on six patents in machine vision and human-computer interaction: four as primary inventor, two as contributing member.
- Current Secret level clearance, past high-level clearances with National Security Agency.

### Education

- Ph.D. in Control Theory, Electrical Engineering Systems.
- Continuing education toward Master's program in Engineering Management – expected completion in Fall, 2010.

## Research and Development Specialties:

Gesture Recognition

Human Computer Interaction

Control Theory

Dynamical Systems

Artificial Intelligence

Image Processing

Machine Vision

Robotics

System Integration

## Employment:

### **Vice President, Research & Development**

Cybernet Systems Corporation, Ann Arbor, Michigan

May 2000–Present

### Accomplishments

- Increased R&D funded activities from less than \$1,000,000 a year to over \$5,500,000 a year.
- Spearheaded efforts resulting in 3 years of Congressional funding totaling \$10 million for product development, system deployment, and commercialization
- Redirected network message handling system from military focus to computer game business activity. Managed technology development through to completed commercial product.
- Established company-wide research and development path including advanced planning with quarterly project review. Resulted in better utilization of resources, projects completed on time and under budget, and satisfied customers.
- Implemented activities and organizational changes that reduced corporate overhead by 12%.
- Management of medical support device sales activities that resulted in division revenue of \$750k/year.
- Lead the expansion of intellectual property to cover our core business activities.

### Responsibilities

- Determine annual corporate goals, corporate budgets, major internal research programs, bonus structure, and external business activities.
- Perform competitive analysis and market definition, establish product specifications and design, define engineering processes, foster government relations, and create/maintain strategic partnerships.
- Direct and oversee six division managers, including annual performance reviews, mentoring, resource allocation, etc.
- Authorize, review, and maintain majority of business agreements, including NDAs, PIEs, Teaming Agreements, and Licensing Agreements.
- Direct successful product development programs and business plans for machine vision system (ex: GestureStorm), maintenance support tablet and software (ex: Software Wireless Maintenance Assistant and TabletTools), and others.
- Establish and maintain key relationships with large and small businesses, Universities, military, and government agencies as prime contractor, sub contractor and joint research, development, and product creation.
- Established procedures for monitoring and completing deliverables on-time. These include externally driven contract deliverables and internally generated ones.
- Defined and implemented bi-annual company-wide employee review system. Responsible for company wide-salary evaluations, hiring, firing, and promotions. Have mentored several employees resulting in strong, active, and committed company personnel.
- Presented briefings (technical, business, and corporate) to government organizations, businesses, and at conferences. Also participated in press/media interviews.
- Continue to fulfill responsibilities for Director position below.

### **Director, Research and Development, and Senior Research Engineer**

Cybernet Systems Corporation, Ann Arbor, Michigan

April 1998 to May 2000

### Accomplishments

- Directed and Improved Small Business Innovative Research proposal and Broad Agency Announcement response activities, including more direct and targeted proposals, training of junior employees with less writing experience, and after action review of awards and debriefings. Resulted in a reduction in overhead costs 20% for proposal writing while increasing win rate by 15%.
- Expanded the use of outside Subject Matter Experts and large prime subcontractors for proposals.
- Lead development of GestureStorm from a machine-vision based Small Business Innovative Research project to a commercial product which has been sold to several television stations nationwide.

### Responsibilities

- Keep projects within budget by:
  - motivating employees to work efficiently
  - working with customers to have focused, realistic and attainable results
  - maximizing efficient use of resources by assessing requirements for multiple projects and identifying opportunities for multiple application of resources.
- Present technical research papers at conferences with the goal of initiating business development.
- Conduct technical due diligence for several go/no-go internal research and development programs.
- Coordinate research program planning including resource management and goal setting, establishing milestones and deadlines.
- Negotiate contracts with Large Government Primes (as prime contractor and sub contractor).
- Directly supervise 20+ government contracts and internal research projects.
- Directly supervise 40+ engineers and support staff.

**Program Manager and Research Engineer**

Cybernet Systems Corporation, Ann Arbor, Michigan

June 1996 to April 1998

- Manager of three distinct projects; supervised a team of electrical engineers, computer programmers, and mechanical engineers.
- Contract budgeting and purchasing. Project management and personnel supervision.
- Wrote over twenty Small Business Innovative Research (SBIR) proposals on Gesture Recognition, Machine Vision, Interactive Information Transfer, and Eye-Tracking Systems.
- Interacted with government and educational contacts.
- Management of projects for proposal writing to pre-production prototypes of: machine vision based ordnance recognition, eye-tracking head mounted display, and gesture recognition system for live, virtual, and constructive Army training environments.
- Created new technology area for human-computer interaction and gesture recognition, resulting in over \$4,000,000 in contracts, a strong intellectual property base, and commercialization activities.
- Organized the modeling and simulation division into a focused development area that resulted in sub-contracting awards with Primes and commercial applications.

**Research Assistant:** Department of Electrical Engineering and Computer Science, University of Michigan, June 1994 to June 1996.

- Researched and developed a gesture recognition and control system for Ph.D.
- Assisted in development and implementation of UMTV hybrid communication system.

**Teaching Assistant:** Department of Electrical Engineering and Computer Science, University of Michigan, September 1989 to May 1994.

- Responsible for senior level EECS 467 Introduction to Robotics laboratory sections.
- Innovating and integrating new laboratory projects and teaching several lecture classes.
- Extensive experience in mentoring, challenging, and guiding students from diverse intellectual backgrounds in a complex interdisciplinary environment.

**Undergraduate Engineer:** National Security Agency (NSA), Fort Meade, Maryland, January to June of 1988, 1989, and 1990.

- Involved in the design, construction, and testing of a microwave receiver system. This included analog and digital design, board layout, purchasing and requisitioning of parts and lab equipment, testing equipment and components, calculation of signal to noise ratios and other required data, and signal simulation.
- Designed, built, and tested a Dual Channel R7000 receiver to RS-232 Interface Box. Assisted Project Manager/Engineer in the design and construction of a medium size receiver system. Involved in the purchasing and requisition of components for the receiver system and interface box. Traveled overseas to assist in the installation of a receiver system.
- Created user friendly PC software which performed complex radio propagation phenomenon calculations. Program was adapted from several related Radio Science articles.

**Patents, Honors, Awards, Societies, and Training:**

U.S. Patent #7,121,946 Beach, Glenn; Cohen, Charles; Jacobus, Charles; Paul, George; "Real-Time Head Tracking System for Computer Games and Other Applications," Issued October 17, 2006.

U.S. Patent #7,050,606 Paul, George; Beach, Glenn; Cohen, Charles; Jacobus, Charles; "Tracking and gesture recognition system particularly suited to vehicular control applications." Issued May 23, 2006.

U.S. Patent #7,036,094 Cohen, Charles J., Glenn Beach, Brook Cavell, Gene Foulk, Charles J. Jacobus, Jay Obermark, George Paul, "Behavior Recognition System." Issued April 25, 2006.

U.S. Patent #6,950,534 Cohen, Charles J., Glenn Beach, Brook Cavell, Gene Foulk, Charles J. Jacobus, Jay Obermark, George Paul, "Gesture Controlled Interface for Self-Service Machines and Other Applications." Issued 27 September, 2005.

U.S. Patent #6,681,031 Charles J. Cohen, Glenn Beach, Brook Cavell, Gene Foulk, Charles J. Jacobus, Jay Obermark, and George Paul. "Gesture-Controlled Interfaces for Self-Service Machines and Other Applications." Issued January 20, 2004.

U.S. Patent #5,652,849 Lynn Conway and Charles Cohen. "Apparatus and Method for Remote Control Using a Visual Information Stream." Issued July 29, 1997.

Societies: Simulation Interoperability Standards Organization (committee member)  
Applied Image Pattern Recognition (2001 conference chair, committee member and officer)  
IEEE  
Society for Manufacturing Engineers  
Association of the U.S. Army  
Phi Eta Sigma  
Eta Kappa Nu  
SWE  
Engineer in Training

NASA: Certificate of Recognition. Gesture Controlled Interface for Self-Service Machines. March 1st, 1999.

National Security Agency: Cash Award: development of Radio Wave Propagation computer program.  
Cash Award: receiver system design and construction.

Training: World Class contracting seminar. Gregory A. Garrett, CPCM, Garrett consulting Services. August 25th, 2004.  
Various Small Business Innovative Research workshops: 1998 – present.

**Education:**

Ph.D. Electrical Engineering University of Michigan, May 1996.

M.S. Engineering Management Eastern Michigan University, February 2006 - present, expected graduation in 2010.

M.S. Electrical Engineering University of Michigan, June 1991.

B.S. Electrical Engineering Drexel University, June 1989.

**Selected Papers:**

Rowe, Steve, Joshua Band, Charles J. Cohen, "Human Factors Issues in Military Simulation Applications." Huntsville Simulation Conference 2006, Huntsville AL. October 17, 2006 to October 19, 2006.

Cohen, Charles J., Ron Hay, Urquhart Andrew G, Gauger Paul, Andreatta Pamela, "A Modular Interactive Virtual Surgical Training Environment", Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC) 2005, Orlando FL. November 28, 2005 to December 1, 2005.

Cohen, Charles J., Barbara Sorensen, Kuo-Chi "Kurt" Lin, William McQuay. "Conducting Business in Network Centric Collaborative Environments" The 2005 International Symposium on Collaborative Technologies and Systems (CTS 2005). Saint Louis, Missouri, May 2005.

Cohen, Charles J., Douglas Haanpaa, Steven Rowe. "An Approach for Simulating a Generic Air-Ground Task Force Environment." Spring Simulation Interoperability Workshop. San Diego, CA, April 2005.

- Cohen, Charles J., Glenn Beach, and Gary Moody. "NaviGaze: A System for Enabling Access to Digital Media for the Profoundly Disabled." 33rd Applied Imagery Pattern Recognition Workshop, Cosmos Club, Washington, DC, October 13-15, 2004.
- Haanpaa, Douglas, Charles J. Jacobus, Charles J. Cohen, Gary Siebert. "A Personal Blue Force Tracking System." Simulation Interoperability Standards Organization's Simulation Interoperability Workshop, Fall 2004, Orlando Holiday Inn, Orlando, FL, September 19-24, 2004.
- Rowe, Steven C., Charles J. Cohen, and Kevin K. Tang. "Applying Computer Game Tutorial Design Techniques to Simulation-Based Training." Simulation Interoperability Standards Organization's Simulation Interoperability Workshop, Fall 2004, Orlando Holiday Inn, Orlando, FL, September 19-24, 2004.
- Cohen, Charles J. "OpenSkies Massive Multiplayer RTI Integration with USAF EAAGLES Simulation Software." ITEC 2004. ExCeL, London, UK, 20-22 April 2004.
- Cohen, Charles, H. Barbara Sorensen, and Steven Rowe. "A Generalized Scenario-Based Training System for Satellite Flight Operations." 2004 Spring Simulation Interoperability Workshop (SIW), The Hyatt Crystal City, Washington, DC., April 18 - April 23, 2004.
- Cohen, Charles, James Grosse, Kelly Assay, Charles Jacobus, and Alex Jimenez. "Using Computer Game Techniques to Support Asymmetric Warfare Simulation." 2004 Spring Simulation Interoperability Workshop (SIW), The Hyatt Crystal City, Washington, DC., April 18 - April 23, 2004.
- Cohen, Charles J. and Ron Hay. "A Graphical Interface for Managing Multiple Unmanned Aerial Vehicles." Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC) 2003. Orange County Convention Center, Orlando, FL, December 1-4, 2003.
- Beach, Glenn, Charles J. Cohen, Gary Moody, and Martha Henry. "Projectile Identification System." Applied Imagery Pattern Recognition 2003: Imagery and Data Fusion. Cosmos Club, Washington, DC, October 15-17, 2003.
- Cohen, Charles J., Douglas Haanpaa, and Ron Hay. "Information Sharing on a Massive Scale." 23rd Army Science Conference. Renaissance Orlando Resort, Orlando, FL, December 2-5, 2002.
- Tesar, Joe, Charles J. Cohen and Jay Obermark. "Articulated Joint for a High-Mobility, Modular Vehicle." SPIE AeroSense Conference. Marriott Hotel and Convention Center, Orlando, FL, 16-20 April 2001.
- Cohen, Charles J., Glenn Beach, Doug Haanpaa, and Chuck Jacobus. "A Real-Time Pose Determination and Reality Registration System." SPIE AIPR'99 Conference. Washington, DC, 13-15 October 1999.
- Charles J. Cohen, Glenn Beach, George Paul, Jay Obermark, and Gene Foulk. "Issues of Controlling Public Kiosks and other Self Service Machines using Gesture Recognition," Intelligent Systems for Man in A Cyberworld, San Diego, CA, October, 1998.
- Lynn Conway and Charles J. Cohen. "Video Mirroring and Iconic Gestures: Enhancing Basic Videophones to Provide Visual Coaching and Visual Control," IEEE Transactions on Consumer Electronics, May, 1998.
- David Kortenkamp, Marcus J. Huber, Charles Cohen, Ulrich Raschke, Clare Bates Congdon, Frank Koss. "Integrating High-Speed Obstacle Avoidance, Global path Planning, and Vision Sensing on a Mobile Robot." Chapter in Artificial Intelligence and Mobile Robots, edited by Kortenkamp, Bonasso, and Murphy, 1998.
- Charles J. Cohen. "Dynamical System Representation, Generation, and Recognition of Basic Oscillatory Motion Gestures, and Applications for the Control of Actuated Mechanisms," Ph.D. Dissertation, University of Michigan, June 1996.
- David Kortenkamp, Marcus J. Huber, Charles Cohen, Ulrich Raschke, Clint Bidlack, Clare Bates Congdon, Frank Koss, and Terry Weymouth. "Integrated Mobile Robot Design: Winning the AAI '92 Robot Competition." In *IEEE Expert*, August 1993.

A full listing of papers is available upon request.

**Volunteer Work:**

Artificial Intelligence Journal: Reviewer, 2006.

International Journal of Computer Vision: Reviewer, 2003.

National Science Foundation: Reviewer, 2002-2003.

Future City Competition Judge. The Annual Michigan Regional Future City Competition, coordinated by ESD-The Engineering Society and sponsored by the DTE Energy Foundation and Ford Motor Company Fund, Livonia, MI, January 2003, January 2004, January 2005, January 2006 and January 2007.

Science Fair Judging. IEEE-SEM Professional Awards at the 41<sup>st</sup> Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD). April 1<sup>st</sup>, 1998.

Public Instruction in Medieval Science, Mathematics, and Engineering. Teaching these subjects at various venues (such as Scouts, public schools, and adult seminars) since 1991.

**Personal Interests:** Graduated conservatory improvisation program at Second City, Technology Panels at Science Fiction Conventions, and Juggling.

**References:** Available on request.