

**MARTIN ROBERT STYTZ, PH.D.**

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**MILITARY CAREER**

**CAREER:**

- A. April 1990- January 1999  
Associate and Assistant Professor of Computer Science  
Department of Electrical and Computer Engineering  
Air Force Institute of Technology  
Wright-Patterson AFB, OH

Accomplishments

Awarded grants from the Advanced Research Projects Agency (ARPA), Defense Modeling and Simulation Office (DMSO), the Air Force Office of Scientific Research (AFOSR), the Joint National Intelligence Development Staff (JNIDS), and Wright Laboratories for research in virtual reality, virtual environments, and distributed interactive simulation for time critical targeting, battle management, satellite intelligence analysis, satellite operations planning, aircraft mission planning, low cost aircraft cockpit simulators, and stochastic weather simulation.

Managed grant monies that were awarded to the Virtual Environments, 3D Medical Imaging, and Computer Graphics Lab. Initiated and managed the procurements and contracting actions to acquire new equipment and hire technical staff into the lab.

Conducted 3D medical imaging research on the use of kriging and other higher-order interpolation methods which was published in journals and conferences in the United States and Europe.

Conducted 3D medical imaging research on the use of parallel processing techniques to accelerate medical image processing and rendering.

Conducted funded research for Wright Laboratories on the use of scientific visualization techniques for assessing the radar cross section of aircraft.

Conducted research to determine the chemistry of wound healing and treatments that would accelerate wound healing in conjunction with the Wright-Patterson Medical Center. This project uses magnetic resonance imaging, hyperbaric oxygen treatment, and positron emission tomography scanning to determine the biochemical processes and concentrations of key substances (such as adenosine triphosphate, adenosine diphosphate, oxygen, and

carbon) within and around a wound site and also portray these concentrations so that the effects of the concentration can be correlated with the progress of wound healing.

Over 40 technical papers published in refereed journals and conferences to date.

1 US patent awarded on material developed for dissertation research.

8 TV and 4 general-public magazine publications.

Invited presentations and demonstrations at the Association for Computing Machinery (ACM) SIGGRAPH conference, the Air Force Association convention, the Interservice/Industry Training and Simulation Conference, the IMAGINA conference in Monte Carlo, Monaco, and at various virtual reality conferences in the US and Europe.

Requested to brief the AFIT Board of Visitors and the Air Force Chief Scientist on the uses of distributed interactive simulation and virtual reality to enhance C<sup>2</sup> in simulated battlefield situations as well as real-world battlefield situations.

Requested to brief the Air Force Surgeon General on the uses of virtual environments for medicine and the prospects of using three-dimensional medical imaging for treating battlefield trauma and disease.

On the organizing committee for the National Science Foundation workshop on research and educational priorities for human-computer interaction.

Primary research adviser to 15 Masters students who have graduated. Four Masters students and two PhD students currently being advised.

Class and course adviser for 25 officer students in their Masters program at AFIT.

Taught courses in computer graphics, software engineering, C, C++, and Ada.

B. November 1989- April 1990

Assistant Professor of Computer Science

Department of Mathematics and Computer Science

Air Force Institute of Technology

Wright-Patterson AFB, OH

Accomplishments

Taught courses in software engineering, FORTRAN, and Ada.

One conference paper published, several conference and journal papers submitted.

Guest lecturer at Syracuse University, Syracuse, New York.

C. January 1986 - October 1989

PhD program in Computer Science and Engineering

The University of Michigan, Ann Arbor, MI

Sponsored by the Air Force Institute of Technology

Accomplishments

Completed program before departing for assignment at AFIT.

Functioned as Liaison Officer and Assistant Liaison Officer for AFIT students at The University of Michigan.

Twice elected as the President of the Computer Science and Engineering Department's Graduate Student's Organization.

One of the founders of the Computer Science and Engineering Department's Graduate Student's Organization.

Tutored The University of Michigan's Air Force Reserve Officer Training Corps cadets on computer science, political science, and military history.

Two conference papers published, several conference and journal papers submitted.

Guest lecturer on 3D medical imaging at Henry Ford Hospital in Detroit, Michigan.

D. June 1984 - December 1985

Software Systems Integration Manager

2nd Space Wing ADVON & 2nd Space Wing

Falcon Air Force Station

Colorado Springs, CO

Accomplishments

Selected by the 2nd Space Wing ADVON commander and approved by the Space Command Commander to be part of the seven-man cadre responsible for planning the activation of the 2nd Space Wing.

Simultaneously filled Wing-level KR, XP, and RM O-5 and O-6 positions during the period when the 2nd Space Wing ADVON was active.

Developed Wing cost accounting procedures used in the ADVON and during the first year's operation of the Wing.

Performed Wing Five-Year Defense Plan (FYDP) budgeting for 1984-1989 period.

Developed the 2nd Space Wing information management plan and instituted it on microcomputers.

Developed the Wing's SPACENET computer and communications plan for satellite and space operations.

Led the design team that developed the 2nd Space Wing seven-year computer systems architecture plan.

Performed initial selection and specification of computer systems and software specification for Wing satellite and shuttle operations facilities, which involved several million dollars worth of equipment.

E. October 1983 - May 1984

Orbital Analyst seconded to the NORAD/Space Command Public Affairs Office

North American Air Defense Command  
Colorado Springs, CO

Accomplishments

Assigned to Public Affairs office while awaiting Orbital Analyst compartmented security clearance.

Wrote a history of space flight for distribution to NORAD visitors.

Wrote the Space Command briefing on the Consolidated Space Operations Center (CSOC) at Falcon AFB (then Falcon AFS).

Wrote the Space Command briefing on the CSOC and Falcon AFB civil engineering and construction project.

Space Command Consolidated Space Operations Center briefer.

NORAD Cheyenne Mountain Complex and NORAD Command Post command briefer.

F. July 1983 - September 1984

Orbital Analyst Student

North American Air Defense Command  
Colorado Springs, CO

Accomplishments

Distinguished graduate.

G. July 1980 - May 1983

Assistant Professor of Aerospace Studies/Commandant of Cadets

Air Force Reserve Officer Training Corps Detachment 390

The University of Michigan, Ann Arbor, MI

Accomplishments

Reorganized the AFROTC Cadet Corps at The University of Michigan.

Managed, evaluated, and devised leadership training for a cadet corps of 120 to 160 cadets.

Designed and instituted cadet regulations for documenting regulation infractions and potential for promotion and commissioning.

Designed and instituted a freshman introduction to AFROTC and the Air Force program to improve freshman training and increase retention. The program became a model for the Ohio Valley AFROTC detachments.

Designed and instituted a sophomore training program to better prepare cadets for AFROTC Summer Camp training and to increase cadet retention.

Broadened the AS200 curriculum to include more information on the history of warfare and military thought.

Designed and instituted a survival training course taken by Air Force and Army cadets.

Designed and instituted a cadet physical fitness program.

Guest lecturer and debate panel member in courses at The University of Michigan related to World War II.

Responsible for AFROTC participation Military Balls, Tri-Service Awards Ceremonies, Dining-Ins, and Dining-Outs.

Wrote student guides, regulations, evaluations as a Field Training Officer at AFROTC summer training camp.

H. July 1979 - July 1980

Wing Alternate Command Post Flight Commander

509th Strategic Missile Squadron

351st Ballistic Missile Wing

Whiteman AFB, MO

Accomplishments

Youngest Wing Alternate Command Post flight commander (ever) in SAC when selected.

Selected as SAC outstanding crew commander.

Recognized authority on the Minuteman II weapon system within the Wing.

Earned fifth highly qualified rating on Minuteman weapon system Standardization Evaluations.

On alert at the Wing Alternate Command Post when the first actual increase in Strategic Air Command readiness occurred and during the subsequent return to normal alert status.

On alert at the Wing Alternate Command Post (ACP) during a SAC Operational Readiness Inspection when the Wing Alternate Battle Staff (ABS) was simulated to be cut off from all communication except with the ACP. Performed ABS duties (normally accomplished by an 8 man crew commanded by a colonel) in addition to Wing ACP and alert duties for 22 hours until ABS communication was restored.

Successfully conducted emergency shutdown of the Wing Alternate Command Post to prevent imminent fire and equipment damage. (one of two ever performed under strategic alert conditions in the field). Coordinated startup of the system with Wing Command Post, Eighth Air Force Command Post, and the Strategic Air Command Command Post.

I. March 1978 - July 1980

Missile Combat Crew Commander

509th Strategic Missile Squadron

351st Ballistic Missile Wing

Whiteman AFB, MO

Accomplishments

Most junior ranking missile combat crew commander (ever) in the 351st Ballistic Missile Wing when selected and qualified on first attempt.

Rated among the top five Missile Combat Crew Commanders in the Wing.

Selected as Wing outstanding crew commander.  
Member of Wing and Squadron Emergency War Order Testing Honor  
Roll  
Earned two highly qualified ratings on Standardization Evaluations.  
Selected for duty as a Missile Combat Crew Commander at the Wing  
Alternate Command Post  
Member of Company Grade Officer's Committee.

- J. February 1976 - February 1978  
Deputy Missile Combat Crew Commander  
509th Strategic Missile Squadron  
351st Ballistic Missile Wing  
Whiteman AFB, MO  
Accomplishments  
Two highly qualified ratings on Standardization Evaluation ratings.  
Member of Squadron and Wing Emergency War Order Testing Honor  
Roll  
Assigned to Wing Alternate Command Post  
Assisted in organizing and conducting Launch Control Center open houses
- K. September 1975 - January 1976  
Missile Combat Crew Training  
Vandenberg AFB, CA.  
Accomplishments  
Successfully completed course.