



Resume for Dr. Frederick J. Foreman
July 22, 2009



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1 Résumé Cover Letter for Dr. Frederick J. Foreman

I am a self-motivated, dedicated, and extremely knowledgeable individual in Engineering, Information Technology, Science, and Program Management. I have extensive experience working in Commercial Industry, Education, as well as experience working with the Department of Defense (DoD).

I have an ambition to be a success in any environment and I am extremely passionate about the success of the team. I am an excellent presenter with outstanding verbal and proven writing skills. I work well with others whilst also working efficiently on my own.

I am seeking a challenging position where I can contribute my knowledge and expertise to the success of the mission, develop and learn new things while adding value and giving my best to the employer.

I am seeking an Executive or Management level position, Program Manager or a Subject Matter Expert position in a challenging environment where I can demonstrate my skills and abilities to make a company or organization excel in achieving its mission and goals.

Listed below are the proven and demonstrated skills that I possess and have acquired over time:

1. Excellent Leadership abilities
2. Excellent oral, writing, and presentation abilities
3. Proposal development, analysis, and evaluation
4. Excellent Sales and deal closing abilities
5. Project and People Management
6. Strategic Planning and Risk Management
7. Business Evaluation and Economic Analysis
8. Earned Value Management
9. Government Compliance, Federal Acquisition Regulation (FAR), Budget Estimation Submission, Corporate Investment Reports, Program Objective Memorandum, and Department of Defense Acquisition Framework (DoDI 5000 series)
10. Defense Acquisition Executive Summary (DAES) and Selected Acquisition Report (SAR) certified
11. Budget estimation and management
12. Broad skills in Information Technology including Overall System design; Wireless Networking; Software Development, Implementation, and Web Deployment; and Software integration
13. Programming skills including Microsoft Visual Studio, Visual FORTRAN, Visual C++, HTML, SQL, and Visual Basic for Applications
14. Computer Aided Design (Pro/Engineer) and Engineering including Finite Elements: Linear and Non-Linear, Numerical Methods, algorithm development, mathematical modeling, data analysis, and technical analysis
15. Composite, Transtropic (Transversely Isotropic), Orthotropic, and general Anisotropic Material Modeling
16. Microsoft Office: Excel, Word, PowerPoint, Microsoft Publisher, Microsoft Access, Microsoft Front Page, Microsoft Project, Microsoft Outlook, Corel Draw, Smart Draw, Scientific Work Place, QuickBooks, etc.
17. Excellent Teaching and Training abilities in Information Technology, Mathematics, and Mechanical Engineering
18. Creative skills including idea generation, problem solving, brainstorming, invention, applied to solving any problem or resolving any issue that is considered hard, difficult, or impossible to do
19. Software Encryption



2 Synopsis of Résumé

2.1 Address and Contact Information

Dr. Frederick J. Foreman
President and Chief Executive Officer (CEO)
Mathematical Modeling, Incorporated (MMI)
14525 Chamberry Circle, Haymarket, VA, 20169
Phone: 571-245-6546
E-Mail: eckmaster@mmi-gov.com

2.2 Education

1995 Ph.D. in Mechanical Engineering, Florida A&M University/Florida State University, Tallahassee, FL (4.0/4.0)
1990 M.S. in Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA (4.8/5.0)
1975 B.S. in Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA (4.2/5.0)

2.3 Employment History

2008-Present Senior Analyst, Metron Aviation, Inc., 45300 Catalina Ct, Dulles, VA 20166
1999-Present President and Chief Executive Officer (CEO), Mathematical Modeling, Inc. 14525 Chamberry Cir, Haymarket, VA, 20169
1999-2001 Chief Technology Officer/Vice-President, HHV Group, Crystal City, VA
1990-2001 Director of Student Engineering Programs/Assistant Professor of Mechanical Engineering, FAMU-FSU College of Engineering, 2525 Pottsdamer Street, Tallahassee, FL, 32310
1999-2000 Chief Operations Officer (COO), EchoMail, Inc., Cambridge, MA
1989-1990 Head Instructor/Director of Program XL, Office of Minority Education, MIT, 77 Massachusetts Ave., Cambridge, MA, 02139
1984-1987 Senior Research Engineer, Computational Fluid Dynamics and Heat Transfer, ALCOA, ALCOA Technical Center, ALCOA Center, PA, 15069
1981-1984 Senior Mechanical Engineer--Cold Rolling, Coil slitting and Emissions, ALCOA, P. O. Box 3567, Davenport, IA, 52808
1979-1981 Grade 8 Cost/Product Design Engineer--Escort, Lynx and Sporty Coupes, Ford Motor Company, 20000 Rotunda Drive, Dearborn, MI, 48121
1978-1979 Technology Assurance Leader--Microwave and New Technology, P&G Company, Ivorydale Technical Center (ITC), 5201 Spring Grove Avenue, Cincinnati, OH, 45217
1977-1978 Plant Start-Up Team Leader, P&G Company, Winton Hill Technical Center (WHTC), 6000 Center Hill Road, Cincinnati, OH, 45224
1975-1977 Machine Technology Specialist, P&G Company, Winton Hill Technical Center (WHTC), 6000 Center Hill Road, Cincinnati, OH, 45224

2.4 Security Clearance

Top Secret (TS) Single Scope Background Investigation (SSBI) (2003)
FAA Security Clearance (2009)

2.5 Awards, Honors, Patents, Achievements

1. Selected to Pi-Tau-Sigma--The Honorary Mechanical Engineering Fraternity (1973)
2. Junior Achievement Advisor Award (1983)
3. Senior Member of the Society of Mechanical Engineers (SME-1984)
4. Awarded Patent No. 4499624--Portable Polisher 2-19-85
5. Awarded Patent No. 4570278--Portable Polisher and Buffs 2-18-86
6. Selected to Sigma Xi--The Honorary Scientific Research Society (1987)
7. GEM Graduate Fellow (1985-1987)
8. NASA Graduate Fellow (1987)



9. NASA/MASSPEP Mentor and Graduate School Seminar Coordinator (1987-1988)
10. Patricia Roberts Harris Fellow (1987-1990)
11. President of Robert R. Taylor Network (1987-Present)
12. Head Math Instructor for Program EXcel (1989-1990)
13. MIT Award for Outstanding Leadership and Service in Furthering Minority Programs (1990)
14. Calculus Instructor for FAMU's Engineering Concepts Institute (1991)
15. Certificate of Appreciation, National Science Foundation, EHR Directorate (1993)
16. Selected to Tau Beta Pi--National Engineering Honor Society (1993)
17. Selected to the New York Academy of Sciences (1995)
18. Superior Accomplishment Award, Florida A&M University (1996)
19. Certificate of Appreciation for Service to University Recruiting (1998)
20. National Society of Black Engineers Award of Appreciation (1999)
21. Teacher of the Year Award at Florida A&M University (1998-1999)
22. STRATHMORE Who's Who Worldwide Lifetime Member (2007)
23. IT Professional of the Year (2009), STRATHMORE Worldwide

2.6 *Grants Secured and Managed*

1. Florida Department of Education MEP, \$295,000, 1990-1992
2. BP America Minorities in Engineering Program, \$620,000, 1991-1998
3. College Reach Out Program--Grades 6-12, Florida Department of Education, \$36,000, 1993
4. ARCO Alaska Foundation--Minority Retention Program, \$229,000, 1993-1999
5. Department of Defense, SEM Research and Training Program, \$1.4 Million, 1993-1998
6. Electric Vehicle Grant: Centerior Energy, Ford, Allied Signals, and Hitachi, \$35,000, 1994-1999
7. DOE's PREP Program, \$21,000, 1994
8. NASA/NSF-SUCCEED Preseason Program: Engineering Concepts Institute, \$196,000, 1994
9. NASA Engineering Concepts Institute, \$176,256, 1995-1998
10. NASA Minority Ph.D. Fellowship Program, \$1,213,528, 1995-2000
11. 3M Corporation--Research Equipment Grant, \$70,000, 1995
12. National Science Foundation (NSF)--Equipment Grant, Co-PI, \$1,000,000, 1996
13. United States Department of Energy--MITE Program, \$14,355, 1997
14. U.S. Department of Education, Enhancing Engineering Education, \$1,275,000, 1997-2002
15. General Electric Fund, Enhancing Student Education for the 21st Century, \$343,500, 1997-2000
16. US DOE Increasing the Number of Minority Engineers, \$1,182,200, 1998
17. DISA, Minority Institutions Technology Support Services (MITSS), Contract Ceiling: \$24,000,000, 2000-2005
18. Electro Hydraulic Drive Unit (EHDU) Modeling and Simulation, Boeing Aircraft, \$98,000, 2000
19. General Electric Fund, Enhancing Student Education for the 21st Century, \$270,000, 2000-2002

2.7 *Publications-Conferences and Journals*

1. Ohland, M.W., G. Zhang, F.J. Foreman, and F. Haynes (2000) "The Engineering Concepts Institute: The Foundation of a Comprehensive Minority Student Development Program at the FAMU-FSU College of Engineering," *Proc. Frontiers in Education*, Kansas City, MO, October, 2000, paper 1372
2. F. J. Foreman, *Mechanics of Deformable Bodies*, CRC, 2000 (in progress).
3. F. J. Foreman, New Stress and Strain Rates for Orthotropic Materials, Proceedings of the Society of Engineering Sciences, March, 1995
4. F. J. Foreman, F. S. Humphries, Program CARE: The Comprehensive Minority Retention and Enhancement Program, ASEE/GSW, 1994
5. F. J. Foreman, A New Mathematical Model for Describing the Behavior of Orthotropic Materials, National Science Foundation Conference on Technological Diversity, Washington, DC, October 28-30, 1993
6. F. J. Foreman, N. L. Fortenberry, P. Dourmashkin, J. Jackson, MIT's Program XL: An Effective Mode of Small Group Learning, Black Student Retention in Higher Education Conference, Baltimore, MD, November 4-7, 1990
7. J. Szekaly and F. Foreman, Megaflops and Cad/Cam in Metals Processing, *Journal of Metals*, October 1986
8. Frederick J. Foreman, Jerry T. Whicker, James A. Bloome, Rick A. Meeker, Portable Polisher and Buffs, United States Patent Office, Patent Number 4,570,278, Feb. 18, 1986
9. Frederick J. Foreman, Jerry T. Whicker, James A. Bloome, Rick A. Meeker, Portable Polisher, United States Patent



Office, Patent Number 4,499,624, Feb. 19, 1985

2.8 *Selected Invited Presentations*

1. Synergetics--The Science of Mathematical Discovery, NSBE Conference, University of Cincinnati, 1975
2. Self Development Strategies for Black Executives, Science and Technology Conference, Massachusetts Institute of Technology, 1976
3. Survival vs. Success, Guest Speaker, Minority Engineering Program, University of Purdue, Indiana, 1981
4. A Pollution Free Process for the Control of Organic Emissions, ALCOA Headquarters, Pittsburgh, Pa., 1982
5. The Essence of Effective Speaking, ECKANKAR Workshop, Pittsburgh, Pa., 1985
6. The 12 Dynamics of Racism, Black Graduate Students Association, Massachusetts Institute of Technology, 1987
7. The Tone Scale, NASA Graduate Research Development Program, Boston, Massachusetts, 1987
8. Attitude and Attention, NASA Graduate Research Development Program, Boston, Massachusetts, 1987
9. How to Market Yourself, NASA Graduate Research Development Program, Boston, Massachusetts, 1987
10. Effective Presentation and Effective Listening, NASA Graduate Research Development Program, Boston, Massachusetts, 1987
11. How to Negotiate the Undergraduate School Process, Massachusetts Pre-Engineering Program, Boston, Massachusetts, 1988
12. How to Negotiate the Graduate School Process, NASA Graduate Research Development Program, Boston, Massachusetts, 1988
13. How to Achieve Your Goals, Umana Harvaside School of Technology, Boston, Massachusetts, 1988
14. Myths of Intelligence, English High School, Boston, Massachusetts, 1988
15. Secrets and Strategies for Academic Success, Laser Program--Emmanuel College, Boston, Massachusetts, 1988
16. Teamwork--The Basis for Academic Success in High School, Undergraduate School, Graduate School and Industry, Boston Area High School Teachers Convention, Northeastern University, Boston, Massachusetts, 1988
17. Program XL: An Academic Excellence Program for the Advancement of Minorities in Engineering, Committee of Undergraduate Programs, Massachusetts Institute of Technology, 1989
18. The Development of Program XL, Black Alumni of MIT, Massachusetts Institute of Technology, Cambridge, Ma., 1989
19. How to Develop a Supermind, Jeremy Burke High School, Boston, Massachusetts, 1990
20. Myths of Intelligence, Minority Introduction to Engineering, FAMU/FSU College of Engineering, Tallahassee, FL., 1990
21. Benefits and Rewards of Being an Engineer, Raines High School, Jacksonville, FL., 1990
22. MIT's *Program XL*: An Effective Mode of Small Group Learning, Black Student Retention in Higher Education Conference, Baltimore, MD, 1990
23. The Importance of Minorities in Engineering, NSBE Regional Conference, Tallahassee, FL., 1990
24. Hosted SECME Summer Institute at FAMU, Tallahassee, FL., 1991
25. The Importance of the Computer as a Tool for the Engineer, The Southeastern Consortium for Minorities in Engineering (SECME) Summer Institute, Tallahassee, FL., 1991
26. The Sacrifices of Becoming an Engineer, FAMU High School, Tallahassee, FL., 1991
27. Hosted **BP** America/University MEP Symposium, FAMU, Tallahassee, Florida, March 8-10, 1992
28. Industry and University Collaboration, NAMEPA National Conference, San Diego, California, 1993
29. A New Model for Describing the Elastic-Plastic Behavior of Orthotropic Materials, ALCOA Technical Center, ALCOA Center, Pa., September 1, 1993
30. A New Model for Describing the Elastic-Plastic Behavior of Orthotropic Materials, National High Magnetic Field Laboratory, Tallahassee, FL., September 28, 1993
31. A New Model for Describing the Elastic-Plastic Behavior of Orthotropic Materials, National Science Foundation, Washington, D.C., October 28, 1993
32. A New Model for Describing the Elastic-Plastic Behavior of Orthotropic Materials, Michigan Technological University, Houghton, MI., November 24, 1993
33. *Program CARE*: The Comprehensive Minority Enhancement and Retention Program, Michigan Technological University, Houghton, MI., January 3, 1994
34. FAMU's Healthy Minority Pipeline, Expanding Minority Educational Opportunities, Phoenix, AZ., December 1-3, 1994
35. Hosted **BP** America/University MEP Symposium, Marco Island, Florida, March 8-10, 1996
36. Increasing the Number of African Americans with their Doctoral Degrees in Engineering, Tuskegee University,



March 14, 1996

37. The Difference between a Manager and a Leader, Tallahassee, Florida, NSBE Regional Conference, February 2, 1998
38. The Importance of Graduate Education for Blacks: A U.S. and World Perspective, February 23, 1999, Caribbean Student Association, FAMU
39. Hosted Workshop on Process Education, Amelia Island, Florida, March 9-13, 1999
40. How to Overcome Challenges in Your Life, April 2, 1999, Havana Middle School, Jr. Beta Club, Tallahassee, Florida
41. Successful Strategies for Excelling Academically, June 12, 1999, Ben Carson's Lifetime Scholars Academy, Detroit, Michigan
42. Ph.D. Comprehensives and Qualifying Exams, July 16-18, 1999, GEM Technical Symposium, West Palm Beach, Florida
43. Information Technology Studies, August 12, 1999, COLSA, Huntsville, Alabama
44. Information Security and Communications Platforms, Bethune-Cookman College, August 18-20, 1999
45. Invited to appear as an Expert Witness before a Senate Hearing on Excessive Surface Delays and the Passenger Bill of Rights, Washington, DC, 9-22-2009
46. Invited as an expert to appear on an INFORMS Aviation Panel and present my findings on Excessive Surface Delays and the Passenger Bill of Rights, San Diego, CA, October 11-14, 2009

3 Employment Highlights: 2008-Present Metron Aviation, Inc.

Senior Analyst responsible for conducting advanced research and analysis to improve Traffic Flow Management in the National Airspace System and Surface operations at airports. Responsibilities include project and budget management, weekly and monthly reports, final reports, and presentations to stakeholders. Major projects include Design of Corridors-in-the-Sky, Excessive Surface Delays, Algorithm development for a new Surface Management System, Flight Object Scenarios, Performance Metrics for Surface Congestion Management, and Tower Flight Data Manager (TFDM).

Senior Analyst on the Next Generation Air Traffic System (NextGen) Dynamic Airspace Configuration for the design of Corridors-in-the-Sky for the National Aeronautics and Space Administration (NASA). Work consisted of a nominal Corridor design taking into account wake turbulence and other safety considerations, Corridor entrance and exit, established entry ramps, emergency situations, Corridor Crossings, passing and lane change procedures, 4D trajectory calculations, and impacts of new technologies, standards, and aircraft avionics on Corridor design and procedures. Other work in support of Corridors-in-the-Sky included the design of future aircraft flight deck displays and Air Traffic Controller (ATC) displays for all Corridor operations, designed Human-in-the-Loop (HITL) experiments for key Corridor operations such as lane changes, passing maneuvers, Corridor Crossings, Corridor entry and exit, etc, and Scenarios for the development of Test Plans for HITL experiments.

Was the *project leader* for the research and analysis of Excessive Surface Delays for a project sponsored by the Federal Aviation Administration (FAA). Work included project management, analysis of the FAA's Enhanced Traffic Management System (ETMS) data, Department of Transportation (DOT) Bureau of Transportation Statistics (BTS) data to determine causes; risks; airline, airport and passenger impacts; and costs of Excessive Surface Delays. Work contained modeling of excessive surface delays, establishing trigger points to help determine conditions when excessive surface delays are imminent, and ways to mitigate excessive surface delays. Research included weather impacts, airport gate availability based on aircraft type, impact of Traffic Management Initiatives (Ground Delays, Ground Stops, etc.), airports and airlines that experience the bulk of excessive surface delays, and case studies at Atlanta's Hartsfield-Jackson International Airport (ATL), Houston Bush Intercontinental Airport (IAH), and New York's John F Kennedy airport (JFK).

Worked on a new Surface Management System to predict current and future aircraft surface movements and provide decision support tools for surface operations at airports. Work included models and algorithms to predict taxi-out times, taxi-in times, queue order and length, expected times of arrival, gate availability including gate attributes, airport initial state, runway configuration, and de-icing and anti-icing times.

Responsible for providing the architectural products: Department of Defense Architectural Framework (DoDAF) All views, Operational views, System views, and Technical views to support the design of TFDM to support NextGen initiatives. Work also included the development of requirements for the TFDM Requirements Document.



4 Employment Highlights: 1999-Present Mathematical Modeling, Inc. (MMI)

President and Chief Executive Officer (CEO) responsible for running day-to-day operations for MMI as its President and CEO. Provide general managerial and administrative leadership, guidance, and direction to MMI. Chair board of directors meeting and serve as MMI's Chief Computer Scientist. Founded MMI (S-Corp) as a software security company in 1999 focusing on software encryption. MMI is a minority owned small business that has matured into providing not only software encryption products but also engineering consulting services and providing cost engineering services, acquisition management services, modeling and analysis services, program management, and creative solutions to a variety of problems in all technical fields.

Worked on and developed a multi-level security software encryption program called **Dynacrypt®**. **Dynacrypt®** is in its 4th major revision and currently provides unprecedented encryption strength of 9,000,000 bits with an intuitive User Interface and runs on Windows platforms. Developed **Dynacrypt®** to offer the following features: Selective Text Dynamic Encryption/Decryption; Custom Key Input: 0 to 125,000 64-Bit Numbers; Secret Key Input: 0 to 125,000 Characters; Partial File Dynamic Encryption/Decryption; Single and Multiple File Dynamic Encryption/Decryption; Directory Dynamic Encryption/Decryption; Hyper-Dimensional Dynamic Encryption/Decryption; Dynamic Speed Encryption/Decryption; Text Editing with DynaEditor (Rich Text Editor); DynaHelp (Compiled HTML Online Help); Event and Action Logging with DynaLog; Analysis Tools: Frequency/Probability Plots, Shannon File Entropy, Measure of Roughness, Index of Coincidence, and Randomness Testing; Database and Administration Tools: Add User, Modify User, and View Database; File Date and Time Stamping; File Anti-Tampering Features; User-Controlled Secret Key Encryption/Decryption (Self-Escrow); specialized Public/Private Key Encryption/decryption; Custom Key encryption/decryption; Embedded Encryption/Decryption; Random Table Selection and User Defined keys; File Shredding; Complexity Settings; Block Size Selection in multiples of 2,048 Bits; Levels of Security: Unclassified, Classified, Secret, and Top Secret; Encrypted File Viewer: Allows viewing the contents of encrypted files without the need for decrypting; File conversions to text, and Mission Impossible features: file self destruction after time has expired, text self destruction based on time, etc.

Wrote proposals and obtained several contracts with the Defense Information Systems Agency (DISA), including contracts to do Program Management and Technical Analyses with Global Command and Control System Joint (GCCS-J), Global Combat Support System (GCSS), and Net-Centric Enterprise Services (NCES).

4.1 *06/2004-05/2007 DISA Net-Centric Enterprise Services (Milestone B Program Management Support)*

Wrote technical and cost proposal and secured contract to provide Program Management Support Services for DISA's flagship Information Technology program called Net-Centric Enterprise Services (NCES) for a Milestone B decision. Organized and selected the team that will do the work and selected relevant past performances addressing Request for Proposal (RFP) requirements among team members. Established proposal strategy and selected a winning team to address all technical requirements. Performed all required company management functions including contract management, management of program management team, and subcontractors. Performed all company budget and reporting management duties including billing and providing programmatic updates on a monthly basis to the technical monitors for the program. Provided Earned Value Management (EVM) metrics for the performance based NCES contract. Coordinated with Task Monitors and contract representatives periodically to maintain schedule and insure deliverables were provided on time and at budget.

In addition served as the Technical Director and Senior Computer Scientist for the DISA NCES Program Management Support including writing and approval of all cost related documents and systems such as the Acquisition Strategy (AS); Economic Analysis (EA) and Return on Investment (ROI), payback, and Net Present Value analysis; Performance Management Plan (PMP) including a Quality Assurance Analysis; Cost Analysis Requirements Description (CARD) including working with the NCES contract teams to provide the proper input for inclusion in the CARD and with SAIC on the Department of Defense Architectural Framework (DoDAF) for the appropriate views to be included in the CARD; Acquisition Program Baseline (APB); and Earned Value Management System (EVMS). Additional duties included Budget and Acquisition Support, Program Reporting, Technical Analysis of Cost Proposals, and providing Working Integrated Product Team (WIPT) Support for the EA, CARD, APB, and AS WIPTs.; technical studies to support various NCES



working groups and external requests; various cost studies and budget reports; and program reporting requirements. These duties were performed to support a Milestone B decision. All Milestone B documents were preceded by document development plans such as the Economic Analysis Development Plan (EADP), CARD Development Plan, AS Development Plan, PMP Development Plan, APB Development Plan, and the EVMS Development Plan.

Worked with the Air Force Cost Analysis Agency (AFCAA) to establish ground rules and a framework so that AFCAA could produce an Independent Cost Estimate (ICE) and to reconcile any cost estimate discrepancies; developed the NCES Cost Model along with a database driven tool to support commercial product selections for cost optimizations for 32 million combinations to produce the NCES Program Management Office Estimate (POE) throughout its Life Cycle; performed various sensitivity analyses to establish program cost drivers; developed cost risk models to make the NCES POE compliant with the Clinger-Cohen Act (CCA) of 1996 and to establish high, low, and most likely cost estimates for 10,000 scenarios to capture cost uncertainties in the NCES POE; wrote various reports targeting NCES transition and implementation costs, concurrent user analysis, server performance, NCES architecture requirements, NCES hosting costs, NCES Work Breakdown Structure (WBS), and NCES business processes; provided input to the Program Objective Memorandum (POM) and prepared the Budget Estimate Submission (BES), Information Technology Budget Reports (IT 300), and other reports as requested to support NCES WIPTs and other requests as needed and attended, participated, and conducted various meetings to support NCES and provided input for briefs, reports, and papers.

Various meetings were held with the Office of Secretary Defense, Program Analysis and Evaluation (OSD/PA&E) to present results and obtain approval. NCES received OSD/PA&E's concurrence on the Milestone B documents.

4.2 *04/2003-05/2004 DISA Net-Centric Enterprise Services (Milestone A Program Management Support)*

Wrote technical and cost proposal and secured contract to provide Program Management Support Services for DISA's flagship Information Technology program called Net-Centric Enterprise Services (NCES) for a Milestone A decision. Selected Team, established the proposal strategy, filtered through the past performances, defined selection criteria and made past performance selections to address program requirements. Managed contract, Program Management Team, subcontractors, budget and billing, and presented programmatic updates on a monthly basis. Provided Earned Value Management (EVM) metrics for the performance based NCES contract. Coordinated with Task Monitors and contract representatives periodically to maintain schedule and insure deliverables were provided on time and at budget.

Led Cost Analysis Working Group (CAWG) as the Technical Leader for the NCES Analysis of Alternatives (AoA) in support of a Milestone A decision. Work included writing and developing the Cost Analysis Development Plan (CADP), developing cost process and cost strategy models for the various NCES alternatives. Developed a Services Oriented Cost Model to predict Life Cycle Costs (LCC) for NCES Increments from FY04 to FY11 and detailed LCC estimates for Increment I. Model included a 1300 line Work Breakdown Structure (WBS) for estimating what is required to develop and field the nine (9) core enterprise services for NCES (discovery, messaging, collaboration, mediation, information assurance/security, enterprise services management, storage, and user assistant). Cost estimates included services development, testing, systems integration and engineering, procurement (hardware and software), configuration management, sustainment, pilots and demonstrations, support to the service delivery nodes, and Capital Authority including Defense Working Capital Fund by leveraging the resources provided by the Defense Enterprise Computing Centers (DECCs). Cost Model predictive capability included a combination of parametric modeling, analogous modeling, engineering build-up modeling, vendor quote assessment modeling, and rough order magnitude (ROM) predictions.

Various sensitivity analyses were conducted to determine cost risks and DoD affordability. A separate database driven model using Visual Basic was developed to assess cost risks. Cost predictions were conducted to support the NCES Use cases for various Best-of-Breeds and vendor software necessary to satisfy program requirements. Developed a Services Oriented Architecture to satisfy the AoA metrics. Performed Time Analysis and metric satisfaction analysis to support capacity planning for the AoA metrics.

Various meetings were held with the Office of Secretary Defense, Program Analysis and Evaluation (OSD/PA&E) to present cost results and obtain approval. NCES received OSD/PA&E's concurrence on the Milestone A AoA document.



4.3 01/2003-03/2003 DISA Business Case Analysis of the DISA Continuity of Operations and Test Facility (DCTF)

Conducted a business case analysis of the Defense Information Systems Agency (DISA) Continuity of Operations (COOP) and Test Facility (DCTF) located at 1010 Gause Boulevard, Slidell, Louisiana, 70458 to determine the economic viability of expanding DCTF's role to support Software Integration and Testing. Analysis included an economic feasibility and viability analysis that consisted of critical success factors, business process models and work breakdown structures (WBS), facility and equipment analysis, market analysis, and Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis; cost to benefit analysis that consisted of Life Cycle Cost (LCC) estimates, ROI models and calculations; competitive analysis; sensitivity analysis with identified key values and their effect on the ROI calculations; and an analysis of DCTF based on the Software Engineering Institute Capability Maturity Model Integrated (CMMI).

4.4 09/2001-02/2004 DISA Global Command and Control System (GCCS-J)

Wrote proposal and secured a contract vehicle with a \$24 million ceiling to provide program management and technology support services to DISA. The contract vehicle was an Indefinite Delivery Indefinite Quantity (IDIQ) contract called the Minority Institutions Technology Support Services (MITSS). Proposal preparation required coordination with 12 minority universities, five (5) small businesses, and two (2) large businesses to capture the contract vehicle. The proposal consisted of a detailed technical proposal and a detailed cost proposal. Task orders were placed within the contract vehicle for competition among the competing teams. Managed all task order contracts, Program Management Team, subcontractors, Minority Institutions, budget and billing, and provided formal programmatic updates on a monthly basis. Provided Earned Value Management (EVM) metrics for all performance based task order contracts. Coordinated with Task Monitors and contract representatives periodically to maintain schedule and insure deliverables were provided on time and at budget.

Wrote a proposal and secured a task order contract to provide Program Management services for the Global Command and Control System Joint (GCCS-J) and the Global Combat Support System (GCSS-J) programs within the MITSS contract vehicle. As the Senior Computer Scientist of record, worked on the GCCS-J program and developed the GCCS-J Cost Matrix, developed GCCS-J Cost Estimation Models, Economic Analysis Development Plan (EADP), calculated Return on Investment (ROI), Payback, and Net Present Value for the GCCS-J program. Developed the Wilson/Foreman PA&E Cost Matrix, Cost to Benefits Analysis, Project Entropy studies, Project Feasibility studies, and developed a generic methodology for Return on Investment for Non-Profit Organizations. Developed Business Process Models, Work and Cost Breakdown Structures, and Cost Estimates for Advanced Concept Technical Demonstrations (ACTD) for the GCCS-J program. Conducted a Business Case Value Analysis of DISA Montgomery (DECC-D) as a production facility supporting the GCCS-J program in Configuration Management (CM). Developed the Global Combat Support System (GCSS) Evolutionary Phase Budget (EPB) in 2002. Conducted Resource Estimation models and calculations to predict Government staffing requirements by grade and step for GCCS-J. Also helped develop the GCCS-J Risk Management Plan.

Additionally, developed Business Process Models for many DISA Programs, Work and Cost Breakdown Structures, Defense Acquisition Executive Summary (DAES) reports, Program Objective Memorandum (POM) submission, Amended Program Objective Memorandum (APOM) submission, Budget Estimate Submission (BES), Performance Management Plan (PMP) documentation and Performance Metric Analysis for GCCS-J and Monthly Performance Metric reviews, GCCS-J IT 300 B documentation preparation, Clinger-Cohen Act of 1996 documentation and compliance summary for GCCS-J, Joint Funding Slides, Cost Analysis Requirements Description (CARD) for GCCS-J, GCCS-J Acquisition Program Baseline (APB) report using the Consolidated Acquisition Reporting System (CARS). Developed the GCCS-J Management Oversight System (GMOS), a Microsoft Access database driven program written in Visual Basic for program reporting, budget management and control, Earned Value Management System (EVMS), and fiscal oversight. Was successful in helping GCCS-J get a favorable Milestone B decision from PA&E for three (3) straight years.

4.5 05/2002-11/2002 DISA NCES Definition Study

Conducted an Analysis of Alternatives (AoA) for the Net-Centric Enterprise Services (NCES) Definition Study. Developed a segment equivalent cost estimation model for four (4) alternatives: Legacy COE supporting only GCCS-J Family of Systems



(FoS), Legacy COE plus GCCS-J FoS and Communities of Interest (COI), Net-Centric Core Enterprise Services using only commercial off-the-shelf (COTS) products, and Net-Centric Core Enterprise Services using a combination of COTS and Government-off-the-shelf (GOTS) products supporting all of the COI and GCCS-J FoS. Calculated the Return on Investment for the four (4) alternatives, recommended the best alternative based on the ROI and other economic and performance factors, provided documentation, briefs, attended meetings, and made presentations to DISA Management and the Office of the Secretary of Defense (OSD) Planning, Analysis, and Evaluation (PA&E).

5 Employment Highlights: 1990-2001 FAMU-FSU College of Engineering

6/15/1990-09/2001 Director/Assistant Professor. Director responsible for directing the Minority Engineering Program (Program CARE), the development of minority retention techniques and strategies to help develop, train and retain minority engineering students at the FAMU-FSU College of Engineering. Responsibilities include administrative duties for a staff of 5 full-time and several part-time or OPS employees, proposal development, program implementation, fiscal management, training of facilitators, managing and monitoring study groups, tracking student performance, minority retention analysis, developing a computer aided instruction center, implementing computer aided instructional software, administering scholarships and Fellowships, interfacing with corporate America and the recruitment of minority engineering students.

Submitted a proposal to BP America for the implementation of a comprehensive minority retention program called Program CARE. Competed with 11 other institutions for BP America's funds and was awarded a meritorious grant of \$420,000 and a renewal grant of \$180,000 for BP America's Minorities in Engineering Program. Also received an award from the Florida Department of Education in the amounts of \$100,000 in 1990 and 1991, and \$95,000 in 1992 to support Program CARE. In addition, secured funds from the ARCO Alaska Foundation of \$26,000, \$25,000, \$22,000, \$39,000, and \$39,000 to support Program CARE.

Directed a Pre-College Program called College Reach Out Program in Engineering (CROP-E) to interest minority students, grades 6-12, in engineering. Funds were secured on a competitive basis from the Florida Department of Education in the amount of \$36,000.

Received grants of \$12,500 from the Centerior Energy Corporation, \$6,000 from Ford Motor Company, \$13,000 from Allied Signals Corporation, \$10,000 from Hitachi Data Systems for the development, construction, testing, and racing competition of a Formula I Lightning Electric Racing Vehicle.

Principal proposal writer for a proposal to the Department of Defense to enhance Science, Engineering, and Mathematics research and education at Minority Institutions. Proposal was funded in 1993 for \$1.4 Million.

Received a grant of \$21,000 from the Department of Energy, DOE's PREP Program, to interest minority students in engineering. Proposal was Funded in 1994-1995.

Received grants of \$51,275 (1994), \$54,000 (1995), and \$59,781(1996) from NASA for the Engineering Concepts Institute. The NASA funds were combined with \$142,000 (1994), \$25,000 (1995), and \$25,000 (1996) from the NSF SUCCEED Coalition to provide transition smoothing for 63, 54, and 42 minority students respectively. The ECI Program is a Pre-College bridge program to ease the transition of minority students from high school to Florida A&M University. Students were taught Calculus, Chemistry, Physics, Engineering Design, Success Strategies and Critical Thinking.

Assistant Professor responsible for teaching Engineering Mechanics (Statics and Dynamics) EGM 3512, Mechanics of Materials EGM 3520, Computer Aided Design EML 4535, Advanced Finite Element Methods EGM 5110, and conducting research in the area of Solid Mechanics in the Department of Mechanical Engineering at the FAMU-FSU College of Engineering. Areas of research include: orthotropic material modeling, spectral finite particle elements, virtual reality applications, and electric vehicle power systems. Worked with the 3M Company in St. Paul, Minnesota during the Summer of 1996 on predicting the failure and conformance of composite road pavement materials on a model road surface. Work included 3-D finite particle models of the elastic-plastic deformation of composite materials under applied surface pressure on a rough 3-D road surface. Also, models to determine the conformance of the road pavement materials on any road surface



were developed.

Worked with President Frederick S. Humphries and received grants of \$300,508 and \$300,510 from NASA to produce minority Ph. D.'s in engineering. Grant consists of 15 fellowships, faculty travel, recruiting, technical conference attendance, Summer research employment at NASA's Lewis Research Center, and related research. Worked with professors in the Mechanics and Materials Research Lab and received an equipment grant for \$1,000,000 from the National Science Foundation for a Scanning Electron Microscope and Lab personnel.

6 Employment Highlights: 1987-1990 Massachusetts Institute of Technology

9/1/87-6/1/90 Director/Instructor Program XL. Instructor devoted to improving the performance of minority engineering students in the science and engineering courses. Primary focus was to retain and improve the performance of minority students in their early years at the Massachusetts Institute of Technology (MIT).

Invented, Developed and Implemented a new and innovative academic excellence program called Program XL. Students that participated in Program XL were retained at MIT at the rate of 99% and achieved a 'B' average or better in their pre-engineering courses at the rate of over 90%. Program XL emphasizes small group learning techniques wherein a facilitator is assigned to challenge the students to achieve academic excellence because they asked for it. Responsibilities included the training of facilitators and staff, as well as managing, monitoring and teaching study groups.

Developed the Finite Particle Method as the optimal mathematical model for solving problems in the field of Theoretical and Applied Mechanics. The method gave results that were several orders of magnitude more accurate than the widely used Finite Element Method.

Was offered and accepted a faculty position at the FAMU-FSU College of Engineering.

7 1981-1987 Aluminum Company of America (ALCOA)

7.1 2/1/84-9/1/87 Senior Research Engineer, ALCOA Technical Center

Senior Research Engineer responsible for the development of computer aided engineering techniques (CAE) to solve tension leveling and permanent mold casting issues. Developed the Finite Particle Method for analyzing mold filling and solidification issues in permanent mold casting operations at the ALCOA plant in Cleveland, Ohio. Computer code showed excellent agreement with experimental results.

Integrated commercial finite element packages with CAE workstations (Evans & Sutherland and Silicon Graphics) to model an entire tension leveling operation. Work included buckle characterization and computer simulations of residual stress patterns in cold rolled aluminum sheets.

Job training included ANSYS finite element training, FLOW 3D finite difference training, PATRAN 3D geometric modeling training and computer training on the following systems: APOLLO, DEC VAX's, EVANS & SUTHERLAND PS300 series, SILICON GRAPHICS IRIS workstations and IBM PC's.

Was offered and accepted admission to graduate study in the Department of Mechanical Engineering at the Massachusetts Institute of Technology.

7.2 5/11/81-2/1/84 Senior Mechanical Engineer, ALCOA Technical Center

Senior Mechanical Engineer responsible for the design, development, coordination and installation of engineering systems that improve the production, maintenance and operation of a computer controlled, water based cold rolling mill with automatic gage and flatness control.



Projects were proprietary in nature but included the analysis and modification of a water stripping system that virtually eliminated downtime from water stain; the development of an off-gage marking system that saved \$500,000 per year; the development and testing of an oil reclamation system (liquid and air organic emissions) with potential savings of \$2 million per year; The invention of a portable hand-held polisher for the aircraft industry (patented); and the computer analysis of machine components (journal bearings, drive spindles, etc.) and their effect on gage control.

Other responsibilities included the engineering and maintenance of nine (9) coil slitters, two (2) core cutters and a wean press. Job achievements included the development and implementation of a uniform tension device that eliminated collapsed coils used for spine fin applications at the TRANE company, saving \$225,000 per year; the design and installation of an oil re-circulating heating/filtration system that eliminated equipment downtime on can sheet slitters.

Additional responsibilities included the training of less experienced engineers and the implementation of a minority recruiting program.

Was offered and accepted a senior research position at the ALCOA Technical Center in Pennsylvania.

8 Employment Highlights: 1979-1981 Ford Motor Company

1979-1981 Product Design Engineer. Product Design Engineer responsible for directing the design initiation and completion of the following systems for the ESCORT/LYNX and Sporty Coupe family of cars (1981 introduction): battery, alternator, regulator, heated backlite, radio, antenna, speakers, front and rear seats (cushion, trim, frame, tracks, latches), safety restraints, inside and outside rearview mirrors and the climate control systems.

Job responsibilities included identifying opportunities related to cost, weight, reliability, fit and finish, part serviceability, schedule and federal requirements and presenting these proposals to Vice-Presidential management.

Job also entailed settling disputes between various divisions, trouble shooting design concerns, issuing car program direction letters, approving or rejecting product change requests from various divisions based on cost, quality and schedule impact, issuing design transmittals and managing the work of less experienced engineers.

The ESCORT/LYNX was introduced in 1981 without delay. Also, developed the zone heating method for rapid defrosting of rear window. Received a promotion in March of 1981 to a grade 8 engineering position at the Vehicle Engineering Office.

Was offered and accepted a senior mechanical engineer position at ALCOA in Davenport, Ia.

9 Employment Highlights: 1975-1979 Procter and Gamble Company (P&G)

9.1 1978-1979 Technology Assurance Leader, Ivorydale Technical Center (ITC)

Technology Assurance Leader with primary responsibility to assure upper level management that technology existed or could be invented to produce on a production basis a new patented product for retaining moisture and taste in foods cooked in a microwave oven.

Job accomplishments included the invention and development of a high speed bag sealing equipment for the production of this product; the invention and development of a product for altering microwaves in such a manner as to cause browning and the appearance of conventional cooked food from a microwave oven; and the design of a manufacturing line for the high speed production of this new patented product.

Was offered and accepted a mechanical engineer position at the Ford Motor Company.



9.2 1977-1978 Plant Start-Up Team Leader, Winton Hill Technical Center (WHTC)

Engineer/Leader responsible for all process systems for an \$85 million plant expansion project (Rely Plant Expansion (P-24), U.S. Highway 19 South, P.O. Box 1747, Albany, GA., 31702) for a new tampon product called RELY. Due to excellent planning and working relationships, job was completed six (6) months ahead of schedule and RELY was successfully introduced in October of 1978.

Primary responsibility involved managing the team efforts with Daniels Construction Company for the installation of the process equipment, trouble shooting and making sure the equipment start-up properly in order to meet the market introduction date.

Job included managing the efforts of my team members (8); managing the interface between the Engineering Division and the Manufacturing Division; managing the construction completion schedule; managing the technology transfer from the Engineering Division to the Manufacturing Division; managing the budget; and being a technical resource on all new equipment.

Was offered several positions within the Procter & Gamble Company and chose the position of Technology Assurance Leader.

9.3 1975-1977 Mechanical Engineer, Winton Hill Technical Center (WHTC)

Mechanical Engineer responsible for the design, development, fabrication and installation of automatic equipment systems for the production of a new tampon product called RELY (RELY was in a test market during this time being produced by hand).

Job responsibilities included interfacing with the Procter & Gamble plant in Cape Girardeau, Missouri; interfacing with designers/draftsmen, machine shop technicians, vendors, equipment manufacturers; money procurement; and selling my engineering viewpoint across many divisional interfaces. Other responsibilities included being a minority recruiter.

Job accomplishments: (1) Developed the horizontal *feedwheels* that took plastic inserters from the horizontal position to a vertical position and successfully metered the inserters into a tampon assembly machine at the rate of 900 parts per minute. (2) Invented the double escapement wheels for separating the plastic inserters. (3) Invented the Foreman fingers for grabbing and cushioning the plastic inserters. (4) Developed molding techniques and a mold for encapsulation of induction heating coils in plastic with minimum distortion. (5) Developed an efficient induction heating coil for rapid sealing of the pleated tampon fabric (Lutrasil, Reemay) in a fraction of a second. (6) Invented the *discriminant seal method* for sealing any fabric material. (7) Co-inventor of the Royal shield inversion chamber for preparing the tampon for assembly. (8) Co-inventor of a new tampon assembling machine for taper grip inserters. (9) Invented bag and string cutting machines incorporating tracing techniques with four degrees of motion. This involved extensive computer analysis requiring curve matching, blending and smoothing. (10) Implemented numerous design changes to a tampon making machine called the *suturer* and a machine called the splicer in order to make these laboratory machines function reliably and efficiently in a plant environment. High speed movie pictures were used extensively in all equipment development.

Was offered and accepted the assignment of heading up all process systems for the plant expansion project at the Procter & Gamble plant in Albany, Ga.