

Gary McKee

Colorado Springs, Colorado
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Senior Principal Systems Engineer Modeling & Simulation Systems Architecture, Algorithm Development

Objective: My goal is to work on technically challenging problems that are important to the organization and that allow me to effectively apply my breadth and depth of knowledge.

Technical Focus

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|-----------------------------|---|
| Life Cycle Engineering | Requirements, Analysis, Architecture, Design, Implementation |
| Technical Architecture | Systems Architecture, Distributed Systems, Data Flow Architecture |
| Technology Development | Algorithm development, implementation & productization |
| Data Acquisition & Analysis | Managing large data sets in real time environments |
| Problem Solving | Complex Problem Resolution, Verification, Maintainability |

Qualifications

With experience in large companies, small companies, and as an independent consultant, I am capable of adapting to varied work environments, I have a high level of personal initiative, and I work well in unstructured environments.

My professional focus has been strongly technical with an emphasis on solving difficult technical problems involving computers. I have consulted extensively for the federal government and various aerospace companies in technology advocacy, system architectures, and algorithm development.

Summary of Experience

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| Life Cycle Engineering (Requirements, Architecture, System Engineering) | (9+ years) |
| Algorithm Design, Data Acquisition, Data Analysis | (9+ years) |
| Database and Internet Applications | (6+ years) |
| Teaching | (5+ years) |
| Modeling and Simulation | (4+ years) |

Education: Bachelor of Science, Mathematics *Minor:* Engineering Physics
University of Tulsa, Tulsa, Oklahoma

Key Accomplishments

System Engineering

1. Provided System Engineering and Architecture for the GPS-OCX project. Applied my extensive experience with the Missile Defense Agency (distributed real time simulations) to the simulation needs for the proposed GPS Ground System upgrade. This work is currently in process.

Architecture

2. Proposed, architected, and led an activity to convert a very large (one million LOC) legacy software product (real time missile tracking software) from proprietary hardware and operating system to PCs running LINUX. Reduced maintenance and replacement budget by over \$380,000/year.
3. Architect and team lead for conversion of client tools from proprietary hardware using IBM hierarchical database to Web based interface using Oracle database. Added data security and user access security. Resulted in reduction of proprietary hardware and software costs exceeding \$500,000 over twelve month period.

Algorithms

4. Proposed, designed, and implemented new algorithms for efficient **access to geographic data** that was globally sparse but locally dense. Led the research program to develop the prototype and later was program manager for the successful deployment of this product to the Navy customer. The product

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- provided automated mechanisms to replace essential Navy activities previously implemented manually.
5. Designed, implemented and managed a **high fidelity orbital mechanics model** for participation in real time, multi-component government simulation (Nimble Titan War Games, 2005). Resulted in first high fidelity model of these requirements in any government simulation. The model ran successfully in all simulations with no data loss and no software failures.
 6. Developed and prototyped a new algorithm for real time **boost phase track prediction** of ballistic missiles. Tracking accuracy and prediction reliability was significantly improved.
 7. Developed **algorithms for micro-coded array processor** for auto-correlation, cross-correlation and band-pass filtering. Resulted in a doubling of throughput of legacy programs that used these new algorithms compared with the vendor supplied microcode.
 8. Translated abstract math concepts into usable and implementable **algorithms for multi-source data correlation and probabilistic vehicle identification**. Achieved 83% automated vehicle identification to replace a time consuming manual process previously used by the Navy.

Product Development

9. Acquired, managed, and delivered a **compiler development** contract from the government. We took an existing Ada Language compiler running on proprietary operating system and ported it to PC quality hardware running on a UNIX operating system. The product was delivered on-schedule, on-budget and met all specified quality and performance criteria.
10. Technical and coordination leader for a **multi-company technology assessment project** at Air Force Wright Laboratories to assess (proposed) common standards to reduce language and hardware diversity at the labs. Achieved successful standardization and Laboratory (customer) buy-in for improved standardization.
11. Provided technical and team leadership in government sponsored consortia for compiler evaluation. The team provided **verification of compiler assessment tools and protocols**. The product was a standardized, robust, and trusted compiler evaluation toolset that resulted in significant improvements in compiler performance and reliability.

Business Development

12. Company representative in multi-company consortium to develop proposal for \$30 million government contract. Success led to significant new task order awards to the consortia.
13. Lead architect for a product team working on a \$14 million dollar Navy proposal. The product was a **real time data correlation tool** for shipboard use by the Navy. Our technical proposal and prototype correlation tool led to successful ongoing funding from the Navy.
14. Developed presentations, training, and support documentation to enhance value and marketability of undocumented legacy product (**Real Time Missile Tracking Tool**). Presentations and training availability led to several new contracts from the government client.

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Teaching

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| FULL FACULTY | Art Institute of Colorado, Acting Program Chair | (1999-2002) |
| ADJUNCT FACULTY | University of Colorado (Boulder Campus) | (2003) |
| TECHNICAL SEMINARS | Computer Languages, Real Time Design, Data Structures | (1988-1998) |
| GUEST LECTURER | University of Colorado (Graduate Engineering program) | (2003-2004) |
| | Art Institute of Colorado, Internet Technologies | (1998) |
| | Air Force Institute of Technology, Real Time Systems | (1991) |

Professional Development

2000-present

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| Simulink for System & Algorithm Modeling | 2005 |
| MATLAB, Advanced Features | 2005 |
| Satellite Toolkit fundamentals | 2004 |
| Cold Fusion, Certified Developer class | 2001 |
| BEA WebLogic Training with JSP | 2000 |
| Java Enterprise Connectivity | 2000 |

1988-1999

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| CORBA Architectural Overview | 1999 |
| Principles of Computational Intelligence | 1993 |
| Introduction to Neural Networks | 1992 |
| UNIX System Administration | 1989 |

Employment

- 2007-present** **Principal Systems Engineer** **Raytheon Corporation**
- Systems Architecture, Modeling & Simulation, Algorithm Development, System Engineering
 - Architect for Simulation & Modeling Integrated Product Team (SIM IPT)
- 2006-2007** **Chief Consultant** **McKee Consulting**
- Systems Engineering, Internet applications
- 2005** **Principal Systems Engineer** **NAVSYS Corporation**
- Systems Engineering, Test Planning & Verification
- 2002-2005** **Principal Systems Architect** **Millennium Engineering & Integration**
- Algorithm Development, Modeling & Simulation, Systems Architecture
 - Real Time Missile Tracking, Track Prediction, conversion to LINUX based toolset
- 1988-2002** **Chief Consultant** **McKee Consulting**
- Algorithm Development, Systems Architecture, Modeling & Simulation, Data Analysis, Object Oriented Analysis & Design, Technology Assessment
 - eCommerce, Internet applications, Database, Technical Training
- Prior Experience (various companies)**
- C³I Architecture, Systems Engineering (requirements, data architecture, life cycle development)
 - OS system level programming, micro-code programming, database (SQL), I/O device drivers.