# Scott E. Carpenter

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US Citizen

## OBJECTIVE

Ph. D. from the Department of Computer Science at NCSU.

## SUMMARY

B.S. and M.S. in Computer Engineering, with post-Masters coursework completed at NCSU as a non-degree student, in preparation for PhD application. 20+ years of industry experience with direct hands-on software developer and technical project manager. Senior management positions leading software teams in a variety of business domains, including: data communications and protocol analysis, software re-engineering, finance and investment, transportation, and aerospace. Excellent written / verbal skills; strong research / analytical skills. Numerous (unpublished) papers, and presentations in support of current role as an information analyst. Interests in stochastic simulation, business modeling, autonomous vehicles, and investment analytics.

## SKILLS

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|---|---|
| Programming: | Java, C++, .NET, BASIC, Prolog, LISP, assembly |
| Database: | SQL (PostgreSQL, MSSQL, Oracle) |
| Design: | UML, Object-Oriented Modeling, Analysis, Design, and Programming |
| Analysis: | Excel, LINDO, @RISK |
| Management: | PMP, Agile |

## EDUCATION

GRE (Nov, 2012):

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|---|---|
| Quantitative Reasoning (score / percentile): | 168 / 97% |
| Analytical Writing (score / percentile): | 5.5 / 96% |
| Verbal Reasoning (score / percentile): | 157 / 73% |

Ph. D. Graduate Student, Department of Computer Science, North Carolina State University.
Entering: Fall, 2013. Expected Graduation: Spring, 2016

Advisor: Mihail Sichitiu, PhD. Research Topic: Routing efficiency within vehicular ad hoc networks (VANET).

GPA: > 4.00 / 4.00

- OR/ISE 501 – Intro to Operations Research. A+.
- CSC 510 – Software Engineering. A+.
- CSC 513 – Electronic Commerce Technologies. A.
- ECE/CSC 579 – Intro to Computer Performance Modeling. B+. Received 100% on two queueing simulation assignments. Implemented my own random-number generator in Java.
- CSC 570 – Computer Networking (fall, 2013). A.
- CSC 591 – Special Topics in Computational Geometry (fall 2013). A+.

Master of Science, Computer Engineering, Case Western Reserve University, 1993.

GPA: 3.57 / 4.00

Thesis topic: Applications of artificial intelligence within learning systems.

Advisor: Dr. Leon Sterling.

Select courses: Compiler Construction, Intro to Logic Programming, Analysis of Algorithms, Operating Systems, Database Systems, Computer Graphics, and Intelligent Systems.

Bachelor of Science, Computer Engineering, Case Western Reserve University, 1989.

With Honors

GPA: 3.20 / 4.00

Wheeling Park High School, Wheeling, WV, 1984

GPA: 4.28. Rank: 2nd in class of 515.

## TEACHING EXPERIENCE

Notre Dame College of Ohio, South Euclid, OH.
Systems Analysis (1992)

## ARTICLES AND PRESENTATIONS (UNPUBLISHED)

Statement: While I do not have any published articles, the following list of work-related articles and presentations is representative of the types of research that I have been involved with more recently

Articles:

Carpenter, Scott E. (2012). A Quantitative Parametric Model for Software Cost Estimation.

Carpenter, Scott E. (2012). Software Cost Estimation Modeling Techniques – A Survey.

Carpenter, Scott E. and Angela C. Rauhut (2012). A Model for Estimated Airport Delay.

Carpenter, Scott E. (2012). Flight Data Collection, Analysis, and Automation for Evergreen.

Carpenter, Scott E. (2011). Aircraft Fleet and Equipage.

Carpenter, Scott E. (2011). Weather Data Primer.

Carpenter, Scott E. (2011). KIDD Instrumentation.

Carpenter, Scott E. (2010). TRACON Cost Allocation Model.
Carpenter, Scott E. (2010). KIDD Mass and Energy Conservation Notes.
Carpenter, Scott E. (2010). ILS Critical Area Elimination.
Carpenter, Scott E. (2010). GBAS Benefits EWR RW29.
Carpenter, Scott E. (2010). Airport Capacity Model.
Carpenter, Scott E. (2009). WAAS Network Simulation Comparison.
Carpenter, Scott E. (2009). Simple WAAS DataComm Model.
Carpenter, Scott E. (2009). 3D Flight Trajectories – Data Processing.

Presentations:
Carpenter, Scott E. (2011). Horizon Flight Data Analysis.
Carpenter, Scott E. (2011). TRACON Facility Consolidation.
Carpenter, Scott E. (2011). Discrete Event Simulation.

## CERTIFICATIONS

Certified Project Management Professional (PMP). Since 2003.
- Passed PM exam from Project Management Institute (PMI) on first attempt.
- Renewed every 3 years – 2007, 2010, 2013

Certified Scrum Master (CSM) - 2009
- Agile Project Management Certification.

## TECHNICAL (WORK) EXPERIENCE

*HOUGHTON ASSOCIATES, INC., Hillsboro*, NC October, 2009 - present
*Information Analyst*

- Assess and synthesize multivariate and highly technical information sources to develop models, run simulations, and present results which assist in the business decisions for aerospace and missile defense systems analysis with agencies, including Federal Aviation Administration and Department of Defence. Systems include GPS, WAAS positional accuracy, airline flight track data, inter-operability of data communications networks, weather data analysis, application of probability models, cost-benefit analysis, and risk assessment. Direct hands-on software development with Java and SQL. Contributions include development of a discrete-event simulation (DES) framework, implementation of a data warehouse for >100GB of NOAA weather data, OMNeT++ network simulation, FlightGear (open-source) flight analysis and modeling. Produce and deliver presentations and technical reports.

*RAILINC, Cary*, NC February, 2009 – October, 2009
*Project Manager – Internal Applications*

- Managed cross-departmental teams for corporate-wide project initiatives in the railroad transportation industry, involving process development, third-party product selection, contract negotiations, implementation, training, and solution delivery. Drove team to product selection of Numara Footprints for problem management, replacing legacy system. Defined departments' OLAs / SLAs. Presentations to senior management. Initiated project for billing system replacement, directing work effort being split between onsite development teams and remote third-party application vendor. Used both agile / scrum and also traditional project management techniques, as appropriate to project needs.

*FIDELITY INVESTMENTS*, Durham, NC June, 2007 – December, 2008

*Senior Development Manager*

- Roles: Development manager, project manager, business analyst, data analyst for large investment company (Fidelity).
- Manage a portfolio of multiple financial system product enhancement projects for regulatory and compliance needs, product replacements and upgrades, and general product enhancements. Development mostly in java, .NET, Oracle, object-oriented code re-use techniques. Duties include technology oversight, architectural review, code reviews, and broad product / project decision-making.
- Examples:
  - Led large, diverse team of 20+ unix, java, and mainframe developers to create new software to deliver a centralized margin requirements calculator, utilizing Oracle and java on the mainframe (a first for the company). This was a highly-visible, large, multi-year, $MM project. Re-assessed project plan, level-set the team's accountability, and then delivered 3 phases on time, unblocking additional projects and allowing them to build upon our success.
  - Implement a third-party COTS credit risk financials system (and retire in-house system). Provide data access interfaces via .NET, XML, jscript.
  - Enhance .NET, Oracle risk system to support options clearing and monitoring of CMTA trades.
  - Enhance in-house java + Oracle Global Credit monitoring system to reflect credit risk of trade-aways.
  - Improve settlements process of .NET, Oracle RegSHO trading.
  - Learn, support, enhance, and mentor teams on FSDM methodology.

*SMITH BREEDEN & ASSOCIATES*, Chapel Hill, NC January, 2006 – June, 2007

*Senior Business Analyst*

- Roles: Project manager, business analyst, data analyst, quality manager, demand management manager, and quality assurance manager, for thriving fixed income investment shop with $32 billion assets under management., reporting directly to CTO.
- Handled all aspects of projects from requirements gathering, data analysis, product search and selection, contract negotiation, resource interviewing, project reporting, training and product rollouts.
- Managed firms highest visibility projects with external vendors to bring in COTS data warehouse (Netik), accounting system upgrade (Thomson PORTIA), trade order management system (Charles River Development).
- Instituted project management disciplines, including use of Scrum to manage co-mingled teams of quality engineers, development staff, business development, and C-Level management.
- Helped team members coordinate internal and external department demands within a dynamically changing environment of high growth.
- Developed and coordinated IT departments demand management methodology.

*SCHWAB PERFORMANCE TECHNOLOGIES*, Raleigh , NC January, 1997 – January, 2006
*Senior Manager IT*

- 10 years directing varying teams of 10-40 for software development, product release cycles, and product and operational maintenance of our suite of portfolio management and trading financial applications. Drives both strategic department planning (developing roadmaps, budgets, team development, process improvements) and tactical delivery (project organization and execute). Profit and loss (P & L) responsibilities. Applies wide latitude of budget and personnel selection / retainment authority. Have selected various staffing mixes of employees, local and remote contractors, consulting firms, and both domestic and international outsourcing vendors for development needs.
- Experience practicing various software development processes and practices: RUP, Agile, Test-Driven Development, Scrum, and Waterfall. Collaborates with teams to grasp needs before selecting the best-fitting course to each individual problem / project. Balances metrics-driven decision making with subjective analysis. Oversees department's constant process improvements. Methodical, strong organizational skills, very process-oriented.
- Exceptional project manager. Thrives on the daily challenges of managing scope, scheduling and planning, effectively mitigating risks, and being the "information conduit". Established a practice within Schwab to use EVM to drive project course-corrections. Expert MS Project skills. Enjoy sharing my PM strengths through instructing others.
- Excellent personal and communications skills. Willing to speak my mind directly, effectively, and professionally. Enjoy the excitement of "bridging the gap" between technical and business groups. Delight in the interactive dynamics of both teaming and personal coaching. Believer of full visibility, transparency, and direct accountability of my reports for their commitments. Confronts problems as they surface.
- Service Awards – 2004: My teams received the Charles Schwab Quarterly and Annual *Excellence In Service* Awards, honoring our achievement of the product release of PortfolioCenter v4.
- Performance: Consistent top-performer. Annual reviews have included – "Top 15%" of corporate peers. MBTI: ISTJ

Substantial Projects:

- PortfolioCenter versions 4.0-4.25 – Lead cross-functional teams of 10-20 to deliver portfolio management software product releases (1-3 releases per year). Assumed full responsibility in mid-project correction to bring team to successful delivery of initial product release, for which team received the highest corporate recognitions.
- Virtual Back Office Performance – Led team of 10 to significantly improve response time and throughput performance of division's new SQL Server-based product.
- Security (subproject) – Assumed responsibility in mid-project execution and successfully led 5 developers to project completion (passing 100% of 1100 test cases) within a few short months through a strong focus on significant risk management and communications.
- Back Office Automation – Led team of 15 to develop system to automate daily office management processes for investment management.
- Order Management System / genTrade – Led team of 20 to successfully release new desktop trade management software system.

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*Performance Technologies, Inc., Raleigh , NC,* *1997-2003*

- Directed cross-functional collaborative effort to transform flagship product to operate with Microsoft SQL Server, including creating of new data processing engine, and substantial performance and scalability improvements.
- Assisted with porting of Centerpiece portfolio management system from DOS application to Microsoft Windows 32-bit application. Centerpiece is a system used by thousands of investment managers to manage customer holdings. Key subsystems include: data imports from numerous brokers, performance tracking, individual and composite return calculations, graphical representations, and extensive reporting capabilities. Total application at completion was 1.5 million lines of C++ code within a client /server architecture.
- Personally contributed to GUI framework utilizing C++, MFC, Microsoft Visual Studio 6.0, print-preview report rendering implementation, report generation (design, infra-structure, and derived classes), inter-process communications of multi-threaded application using COM and DCOM.
- Added graphical reports using third party Graphics Server software.

*Quintiles, Inc., RTP , NC* *1996*

- Development of QTONE voice response application. Prototype utilizing C++, MFC application, COM. Made use of ActiveX controls. Coordinated research and recommendations for third-party hardware and software of voice response sub-systems. Test harness scripting using Microsoft Test and Visual Basic

*Micro Focus (Burl Software), Raleigh, NC* *1994 – 1995*

- Development of Micro Focus Revolve, a PC-based application to analyze legacy source code. Heavy emphasis on Y2K issues. Application was written in C++. Given responsibility for creation and introduction of Micro Focus CORE, a new subsystem for accessing source files throughout numerous file systems, including IBM mainframe, PVCS, Microsoft network, and Micro Focus source management systems. Responsibilities were wide-ranging: capture business requirements, review and approve design, technical lead for coding, write documentation, co-develop marketing material.

*Wandel and Goltermann, Inc., RTP, NC* *1993 – 1994*

- Development of FlexNet DA-30 application and other protocol analysis functions. Lead development role in production of W&G Domino product, development major infra-structural components and chief developer for Transmit functionality, one of 4 "core" sub-systems. ISO-9000 environment.

*Attachmate (DCA / Chi Corporation), Cleveland, OH* *1989 – 1993*

- Programmer for various terminal emulation products within the Unisys, Sperry, Burroughs, and IBM communications and protocol environments. Programming in 8086 assembler, C/C++ for DOS, Windows, OS/2, Mac, Unix environments. Promoted to Systems Engineer where duties included customer site visits for technical problem resolution, demos, new product installations, industry conferences for technical presentations. Extensive travel.

## REFERENCES

Available upon request.