



## Jeffrey A. Miller, Ph.D.

Associate Professor, Computer Systems Engineering  
 Chair, Bachelor of Science in Engineering Department  
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### Personal Statement

Throughout my career, I have progressed through the technical ranks as a junior programmer, senior programmer, technical lead, chief architect, director of engineering, and founder and CEO of my own company that created wireless handheld point-of-sale systems for the restaurant industry. For five years while in graduate school, I taught undergraduate Computer Science courses at California State University, Los Angeles, earning the Professor of the Year award for the CS department in 2003. After receiving my Ph.D. in Computer Science in 2007 from the University of Southern California, I became an Assistant Professor in the Computer Systems Engineering program at the University of Alaska Anchorage from August 2007-June 2011. From July 2011-present, I am an Associate Professor. Since February 2011, I am the Chair of the Bachelor of Science in Engineering department at UAA, which offers degrees in Computer, Electrical, and Mechanical Engineering with 13 tenure-track and 5 adjunct faculty. I was promoted to Associate Professor and tenured at UAA beginning in the 2011/2012 academic year.

While at UAA, I have authored and achieved University approval for introductory programming, object-oriented programming, systems administration, digital circuits, computer networking, operating systems, FPGA, and VLSI classes for engineering students focused on applied applications in various engineering disciplines. I also was the Program Chair for the Computer Systems Engineering department in preparing ABET documents to ultimately achieve full accreditation in 2008 and again in 2010.

I have also been successful in securing nearly \$600,000 as a PI and an additional \$210,000 as a co-PI in research funding in my first two years for projects concerning Intelligent Transportation Systems (ITS) networks and architectures. Single architectures are not always suitable for an application, so I focus on combining different network and system architectures to suit the needs of a specific application. In a mobile environment, combining centralized and distributed architectures into a single system allow wireless devices to behave as thin and thick clients. With ITS architectures, V2V (Vehicle-to-Vehicle), V2I (Vehicle-to-Infrastructure), and the hybrid V2V2I (Vehicle-to-Vehicle-to-Infrastructure) architectures provide a means for vehicles to transmit information to a central repository and other vehicles. One of the grants I have received focuses on installing tracking devices in 75 vehicles that communicate over the cellular network speed, location, and additional information available through a vehicle's on-board diagnostic (OBD) port. This data is combined with the data retrieved from other means, such as inductor loops, video cameras, driver reports, air tubes, and other vehicles equipped with GPS transmitters and receivers. From this data, a map of the roadways is provided showing the speed of select vehicles, average speed on arterial roadways, locations of congestion, fastest paths, and other information as requested by the stakeholders.

Within the IEEE, I have been quite active, being the General Chair for the IEEE 69<sup>th</sup> Vehicular Technology Conference in fall 2009 and the IEEE 15<sup>th</sup> Intelligent Transportation Systems Conference in fall 2012, both of which were in Anchorage, Alaska. I have also been a Program Co-Chair and am the Technical Program Chair for the IEEE 73<sup>rd</sup> Vehicular Technology Conference in fall 2011. I am on the IEEE Intelligent Transportation Systems Society Board of Governors for the term from January 2009-December 2011 and was elected as Vice President for Administrative Activities in the same society from January 2011-December 2012. I am also on the IEEE Vehicular Technology Society Board of Governors for the term from September 2011-December 2013. Starting in January 2012, I will be the Editor-in-Chief of the IEEE ITS Magazine. Within the ITSS, I am an Associate Editor for the IEEE Transactions on Intelligent Transportation Systems. In 2010, I was the treasurer for the Alaska section of the IEEE and am the chair of the section from January 2011-December 2011. In addition to being a member of the Intelligent Transportation Society of Alaska, I am also the president from January 2010-December 2011. I am also actively involved in additional upcoming conferences, being the program co-chair, publicity co-chair, local arrangements chair, and volunteer coordinator chair. I have been a member of the technical program committee, session chair, and reviewer for many conferences. Within ACM, I am a member and the faculty advisor for the student chapter of the ACM at the University of Alaska Anchorage.

## Research Statement

My research focuses on the software and network architectures and algorithms used in mobile and wireless communication. Single architectures are not always suitable for an application, so I also focus on combining architectures to suit the needs of a specific application. The application area I use in my research is Intelligent Transportation Systems (ITS). Pure Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) architectures have been proposed, and V2I communication is currently used by many ITS applications (such as automated toll booths, vehicle tracking, etc.). As more vehicles begin to use V2I communication for transmitting data to a central repository, different architectures or much creative utilization of bandwidth will be necessary. Hybrid architectures (such as the Vehicle-to-Vehicle-to-Infrastructure (V2V2I)) will be needed so that the data transmitted will not overwhelm the central systems.

In addition to the architecture, efficient algorithms are also necessary for analyzing the large amount of data that will be received. The data may be granular enough to determine the location of an accident or object in the roadway, the average speed on many different arterial roads for determining fastest paths, or for determining the impact of construction or a new building to the current traffic congestion, among many other potential applications. Making this data available in an efficient manner and performing real-time calculations on this data to produce usable results have been difficult challenges. The algorithms used need to be application-specific so they can be optimized for the utmost in efficiency.

One of the grants I have received is from the Alaska University Transportation Center, in conjunction with the Alaska Department of Transportation. The project has installed tracking devices in 65 vehicles in the city of Anchorage. The tracking devices are connected through the vehicle's on-board diagnostic (OBD) port, and the speed, location, and additional data from the vehicle's computer system are transmitted through the cellular network to a central server. This data is combined with the data retrieved from other means, such as inductor loops, video cameras, driver reports, air tubes, and other vehicles equipped with GPS transmitters and receivers. From this data, a map of the roadways is provided showing the speed of select vehicles, average speed on arterial roadways, locations of congestion, fastest paths, and other information as requested by the stakeholders. Some information, such as fastest paths or locations of congestion, are also returned to drivers as requested via text messages. With the devices strategically placed in 75 vehicles that traverse the main arterials of the city on a daily basis, the results have been quite promising. Probe vehicles are proving to be a very effective way of determining flow of traffic on main arterials, coupled with additional vehicle data from other means. The data is fed into a real-time simulator I created called FreeSim (<http://www.freewaysimulator.com>), which now utilizes Google Maps for its display. The data is also exposed over the Internet for other researchers to exploit and test their own algorithms given a live set of distributed data gathered via a V2I architecture at <http://www.alaskatrafic.net>.

Over the next few years, my research will continue to focus on architectures for large-scale systems and developing criteria by which different architectures can be evaluated. Various architectural methodologies will be employed to determine a priori advantages for a purely distributed versus a purely centralized versus a hybrid architecture. In addition, I expect to develop specialized algorithms that optimize the performance of each of these architectures, given the specific application. My approach to a posteriori analysis relies upon the development of simulation models that realize the underlying architecture and are calibrated by whatever actual data is available, as well as what data is required by the end-user applications. Typical questions I expect to address are bandwidth requirements, accuracy of the data representation, historical tracking of data, processing power required by each device, and reliability under failure modes, among other factors. Within Intelligent Transportation Systems, I will work on determining factors that are involved in a traffic incident (such as human, vehicular, and environmental factors) and assigning probabilities of an incident to different situations, attempting to predict not only traffic but the likelihood of an incident. Continuing to model traffic in real-time and answer questions posed by transportation engineers will also be an emphasis of my future research. Collaborating with faculty in other departments will prove useful in this field as well, such as determining vehicle slippage, location of potholes, and engine efficiency by installing additional sensors on vehicles. The potential number of applications is endless, and researchers from different departments will add invaluable to the project.

## Teaching Statement

While working on my Ph.D. in Computer Science at the University of Southern California, I was teaching as an Adjunct Professor in the Computer Science department at California State University, Los Angeles. From 2002-2007, I taught many undergraduate Computer Science courses, including Introduction to Web Site Development (CS120), Introduction to SQL and Databases (CS122), Introduction to Programming (CS201), Introduction to Object-Oriented Programming (CS202), Programming with Data Structures (CS203), C Programming (CS242), Computer Ethics in the Information Age (CS301), Algorithm Design and Analysis (CS312), Web and Internet Programming (CS320), Introduction to Automata Theory (CS386), Java for C++ Programmers (CS454 – Special Topics), Enterprise Architecture (CS454 – Special Topics, now CS420), Compilers (CS488), and Undergraduate Computer Science Wrap-Up Course (CS490). I also led a team of students in a directed study (CS499) to create a project to be used as the basis for the undergraduate compiler course. In 2002, I was voted Professor of the Year by the students in the Computer Science department, which was the first time ever a part-time lecturer had received that award. While there, I also authored the CS420 course on enterprise architecture, including RMI, CORBA, Web Services, and MVC architectures (including Spring and Struts).

After completing my Ph.D. in Spring 2007, I accepted a position as an Assistant Professor in the Computer Systems Engineering department at the University of Alaska, Anchorage. As the department was only 3 years old, I was given the ability to author many courses, including Introduction to C Programming for Engineers (CSE 205/294A), Object-Oriented C++ Programming for Engineers (CSE 215/294B), Engineering Systems Administration (CSE 394B), Operating Systems Engineering (CSE 335), Digital Circuits Design (CSE 342), Computer Networking for Engineers (CSE 345), and VLSI Circuit Design (CSE 442). I have taught all of the above courses during my time at UAA, as well as a circuits class entitled Elements of Electrical Engineering (ES 309). I also am the advisor for our undergraduate senior design course (CSE 438), in which groups of students develop a project from conception through implementation that encompasses the knowledge they have gained during the course of their degree. I have also been actively involved in forming the curriculum based on ABET criteria, and in 2008 and again in 2010, I led the Computer Systems Engineering department through successfully becoming accredited.

As for my student evaluations for the past 8.5 years of teaching, on a scale of 1 to 5, with 1 being the best, my average score is 1.3 from more than 940 students in over 56 classes. While at Cal State LA, the scores from the student evaluations were the top in the Computer Science department. I like to mix traditional and non-traditional teaching methods to provide students with a unique educational experience. Powerpoint slides provide a basis for the lectures, but many of my lectures involve much student participation, discussions on the whiteboard, programming with an overhead projector, and diverting from the lecture notes to emphasize the topics of interest to the students. I believe that the most exciting projects for students are the ones they choose on their own, and in each of my classes the final project is decided by the students (with my approval ahead of time). The project must incorporate much of the material learned in the course, but the project itself is determined by the students. I have had a lot of positive feedback from that approach, as the students have chosen projects based on their own interests.

Although I enjoy teaching a wide array of courses, I feel most comfortable in teaching courses involved in software engineering, algorithms, networking, and general programming. I feel I am the most knowledgeable in those areas because of my research focus being in those fields, though I have a genuine passion for teaching, and I enjoy the interaction with students regardless of the course (as can be seen by the wide array of courses I have taught). Although I enjoy the research I do, I am very interested in teaching and passing the knowledge I have gained along to future generations of computer scientists and engineers.

## Education

- **Ph.D. in Computer Science, May 2007**  
**University of Southern California**
  - Successfully defended dissertation on April 27, 2007, with topic “Algorithms and Data Structures for the Real-Time Processing of Traffic Data” under the advisement of Professor Ellis Horowitz, Professor Petros Ioannou, and Professor Ming-Deh Huang
- **Master of Science in Computer Science, December 2002**  
**University of Southern California**
  - Emphasis in Systems and Software Engineering
- **Bachelor of Science in Computer Engineering and Computer Science, May 2002**  
**University of Southern California**
  - Graduated cum laude

## Professional Affiliations

- IEEE – member since 2002
- ACM – member since 2002
- IEEE Alaska Section Chair – January 2011-December 2012
- IEEE Alaska Section Treasurer – January 2010-December 2010
- Intelligent Transportation Society of Alaska President – January 2010-December 2011
- IEEE Communications Society – member since 2002
- IEEE Computer Society – member since 2002
- IEEE Intelligent Transportation Systems Society – member since 2006
- IEEE Vehicular Technology Society – member since 2009
- IEEE Intelligent Transportation Systems Society Board of Governors – January 2009-December 2011
- IEEE Intelligent Transportation Systems Society VP Admin Activities – January 2011-December 2012
- IEEE Intelligent Transportation Systems Society Best Ph.D. Dissertation Committee – 2011
- IEEE Vehicular Technology Society Board of Governors – September 2011-December 2013
- IEEE Vehicular Technology Society Conference Committee – January 2011-December 2011
- IEEE-USA’s Career and Workforce Policy Committee – January 2011-December 2011
- IEEE-USA’s Committee on Transportation and Aerospace Policy – April 2011-December 2011
- University of Alaska, Anchorage ACM Student Chapter Faculty Advisor – 2008-present
- Intelligent Transportation Society of Alaska – member since June 2009
- Municipality of Anchorage (MOA) Anchorage Metropolitan Area Transportation Solutions (AMATS) Freight Advisory Committee – 2010-present
- Municipality of Anchorage (MOA) Anchorage Metropolitan Area Transportation Solutions (AMATS) Intelligent Transportation Systems Advisory Committee

## Magazine Editor-in-Chief

- *IEEE Intelligent Transportation Systems Magazine, January 2012-December 2014*

## Journal Associate Editor

- *IEEE Transactions on Intelligent Transportation Systems, 2010-present*

## Magazine Associate Editor

- *IEEE Intelligent Transportation Systems Magazine Guest Editor – Traffic Simulators, Fall 2010*
- *IEEE Intelligent Transportation Systems Magazine, 2009-present*

## Grant Reviewer

- *NSF Panel, 2011*

## Journal Publication Reviewer

- *IEEE Transactions on Intelligent Transportation Systems*, 2011
- *IEEE Intelligent Transportation Systems Magazine*, 2010
- *IEEE Transactions on Intelligent Transportation Systems*, 2010
- *EURASIP Journal on Advances in Signal Processing*, 2009
- *IEEE Transactions on Intelligent Transportation Systems*, 2009
- *IEEE Communications Magazine*, 2009
- *IEEE Transactions on Intelligent Transportation Systems*, 2008
- *IEEE Communications Magazine*, 2008
- *IEEE Transactions on Intelligent Transportation Systems*, 2007
- *IEEE Communications Magazine*, 2007

## Conference Proceedings Reviewer

- *IEEE 8<sup>th</sup> International Conference on Information, Communications, and Signal Processing*, Shangri-La, Singapore, December 2011.
- *IEEE 2011 Systems, Man, and Cybernetics Conference*, Anchorage, Alaska, USA, October 2011.
- *IEEE 74<sup>th</sup> Vehicular Technology Conference*, San Francisco, California, USA, September 2011.
- *IFAC 18<sup>th</sup> World Congress*, Milano, Italy, August 2011.
- *IEEE 7<sup>th</sup> Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
- *IEEE 1<sup>st</sup> Forum on Integrated and Sustainable Transportation Systems*, Vienna, Austria, June 2011.
- *IEEE 73<sup>rd</sup> Vehicular Technology Conference*, Budapest, Hungary, May 2011.
- *IEEE 13<sup>th</sup> Intelligent Transportation Systems Conference*, Madeira, Portugal, September 2010.
- *IEEE Workshop on Vehicular Networking and Applications*, co-located with *IEEE International Conference on Communication*, Cape Town, South Africa, May 2010.
- *IEEE 13<sup>th</sup> International Multitopic Conference*, Islamabad, Pakistan, December 2009.
- *IEEE 7<sup>th</sup> International Conference on Information, Communications, and Signal Processing*, Macau, China, December 2009.
- *IEEE 12<sup>th</sup> Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
- *IEEE 1<sup>st</sup> Vehicular Networking Conference*, Tokyo, Japan, October 2009.
- *IEEE 70<sup>th</sup> Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.
- *IEEE 69<sup>th</sup> Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 3<sup>rd</sup> Workshop on Automotive Networking and Applications*, co-located with *IEEE Global Communication Conference 2008*, New Orleans, Louisiana, USA, December 2008.
- *IEEE 11<sup>th</sup> Intelligent Transportation Systems Conference*, Beijing, China, October 2008.
- *3<sup>rd</sup> International Symposium of Transport Simulation*, Queensland, Australia, August 2008.
- *IEEE 4<sup>th</sup> Vehicle-to-Vehicle Communications Workshop*, in conjunction with *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 10<sup>th</sup> Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
- *IEEE 3<sup>rd</sup> Vehicle-to-Vehicle Communications workshop*, in conjunction with *IEEE 3<sup>rd</sup> Intelligent Vehicles Symposium*, Istanbul, Turkey, June 2007.

## Conference General Chair

- *IEEE 78<sup>th</sup> Vehicular Technology Conference*, Las Vegas, Nevada, USA, September 2013.
- *IEEE 15<sup>th</sup> Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012.
- *IEEE 70<sup>th</sup> Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.

## Conference Technical Program Chair

- *IEEE 74<sup>th</sup> Vehicular Technology Conference*, San Francisco, California, USA, September 2011.

## Conference Technical Program Co-Chair

- *IEEE 7<sup>th</sup> Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
- *IEEE 1<sup>st</sup> Forum on Integrated and Sustainable Transportation Systems*, Vienna, Austria, June 2011.

### **Conference Publicity Co-Chair**

- *IEEE 13<sup>th</sup> Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 2010.

### **Conference Local Arrangements Chair**

- *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.
- *IEEE International Conference on Robotics and Automation*, Anchorage, Alaska, USA, May 2010.

### **Conference Awards Committee Member**

- *IEEE 6<sup>th</sup> Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.

### **Conference Technical Program Committee Member**

- *IEEE 14<sup>th</sup> Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
- *IEEE 2<sup>nd</sup> Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
- *IEEE International Conference on Communications, Vehicular Mobility Workshop*, Cape Town, South Africa, May 2010.
- *IEEE International Conference on Communications Vehicular Connectivity Workshop*, Cape Town, South Africa, May 2010.
- *IEEE 1<sup>st</sup> Vehicular Networking Conference*, Tokyo, Japan, October 2009.
- *IEEE 69<sup>th</sup> Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium Vehicle-to-Vehicle Communications Workshop*, Eindhoven, The Netherlands, June 2008.

### **Special Session Organizer**

- “Intelligent Vehicular Applications, Simulations, and Implementations.” *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.

### **Conference Session Chair**

- *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.
- *IEEE 14<sup>th</sup> Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
- *IEEE 7<sup>th</sup> Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
- *IEEE 2<sup>nd</sup> Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
- *IEEE 12<sup>th</sup> Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
- *IFAC 12<sup>th</sup> Symposium on Control in Transportation Systems*, Redondo Beach, California, USA, September 2009.
- *IEEE 5<sup>th</sup> Intelligent Vehicles Symposium*, Xi’an, China, June 2009.
- *IEEE 11<sup>th</sup> Intelligent Transportation Systems Conference*, Beijing, China, October 2008.
- *IEEE 10<sup>th</sup> Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.

### **Conference Awards**

- Poster Honorable Mention (given to top 5 out of 250 posters), “Determining Time to Traverse Road Sections based on Mapping Discrete GPS Vehicle Data to Continuous Flows.” *IEEE 6<sup>th</sup> Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.

### **Other Awards and Recognition**

- *University of Alaska Anchorage School of Engineering Spring 2011 Engineering Competition Faculty Advisor*, based on being the Faculty Advisor to a student whose project won the Engineering Competition, April 2011.
- *University of Alaska Anchorage Office of Undergraduate Research and Scholarship Faculty Mentor Award*, based on being the Faculty Mentor to a student who won an Undergraduate Research and Scholarship Award for Research, April 2011.
- *University of Alaska Anchorage School of Engineering Fall 2010 Engineering Competition Faculty Advisor*, based on being the Faculty Advisor to a student whose project won the Engineering Competition, December 2010.

- *Anchorage Convention and Visitors Bureau Seymour Award Winner 2011*, based on being the Annual Meeting Champion from 2010.
- *Anchorage Convention and Visitors Bureau Meeting Champion*, October 2010, based on the conferences I have aided in bringing to Anchorage having an economic impact of \$3,157,341.94.
- *Professor of the Year of Computer Science* at California State University, Los Angeles in 2002 based on student votes. I was the first lecturer ever to be given this award.
- *Sustainable City Network Article by Randy Rodgers*, April 20, 2011.  
[http://www.sustainablecitynetwork.com/topic\\_channels/transportation/article\\_ca00cf16-69db-11e0-9b0e-001a4bcf6878.html?mode=story](http://www.sustainablecitynetwork.com/topic_channels/transportation/article_ca00cf16-69db-11e0-9b0e-001a4bcf6878.html?mode=story)

## Conferences Attended

- *IEEE 3<sup>rd</sup> Vehicular Networking Conference*, Amsterdam, The Netherlands, November 2011.
- *IEEE Systems, Man, and Cybernetics Conference*, Anchorage, Alaska, USA, October 2011.
- *IEEE 14<sup>th</sup> Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
- *IEEE 74<sup>th</sup> Vehicular Technology Conference*, San Francisco, California, USA, September 2011.
- *ITE Western District Annual Meeting*, Anchorage, Alaska, USA July 2011.
- *IEEE 73<sup>rd</sup> Vehicular Technology Conference*, Budapest, Hungary, May 2011.
- *American Planning Association's National Planning Conference*, Boston, Massachusetts, USA, April 2011.
- *IEEE 2<sup>nd</sup> Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
- *ITS Alaska Annual Meeting*, Fairbanks, Alaska, USA, October 2010.
- *Alaska Community Transportation Transit Conference*, Fairbanks, Alaska, USA, October 2010.
- *IEEE 13<sup>th</sup> Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 2010.
- *IEEE 6<sup>th</sup> Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.
- *IEEE International Conference on Robotics and Automation*, Anchorage, Alaska, USA, May 2010.
- *Maintenance Decision Support System Product Showcase*, Anchorage, Alaska, USA, April 2010.
- *Arctic Ice and Snow Roads 2010 Conference*, Anchorage, Alaska, USA, March 2010.
- *IEEE 12<sup>th</sup> Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
- *IEEE 70<sup>th</sup> Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.
- *IFAC Symposium on Control Systems*, Redondo Beach, California, USA, September 2009.
- *IEEE 69<sup>th</sup> Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 6<sup>th</sup> Consumer Communication and Networking Conference*, Las Vegas, Nevada, USA, January 2009.
- *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 10<sup>th</sup> Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
- *IEEE 3<sup>rd</sup> Intelligent Vehicles Symposium*, Istanbul, Turkey, June 2007.
- *IEEE 29<sup>th</sup> International Conference on Software Engineering*, Minneapolis, Minnesota, USA, May 2007.
- *IEEE 9<sup>th</sup> Intelligent Transportation Systems Conference*, Toronto, Ontario, Canada, September 2006.
- *ITS America Conference*, Phoenix, Arizona, USA, May 2005.
- *IEEE 1<sup>st</sup> Consumer Communication and Networking Conference*, Las Vegas, Nevada, USA, January 2004.

## Awards Received by Students Advised

- Timothy Menard. Internship with Toyota InfoTechnology, Mountain View, California, Summer 2011.
- Timothy Menard. 1<sup>st</sup> Place, "FreeSim\_Mobile: iPhone vs Android." *University of Alaska Anchorage School of Engineering Spring 2011 Design Competition*. \$3000
- Timothy Menard. *USUAA Student Travel Grant* to attend IEEE Intelligent Vehicles Symposium in Baden-Baden, Germany, Spring 2011. \$850
- Timothy Menard. 2<sup>nd</sup> Place, *IEEE Spring 2011 Northwest Area Paper Competition*, April 2011. \$500
- Timothy Menard. 1<sup>st</sup> Place, *IEEE Alaska Spring 2011 Paper Competition*. (moved onto IEEE Spring 2011 Northwest Area Paper Competition), March 2011.
- Timothy Menard. *USUAA Student Travel Grant* to attend IEEE Intelligent Vehicles Symposium in San Diego, California, Spring 2010. \$750
- Timothy Menard. 1<sup>st</sup> Place, "FreeSim\_Mobile." *University of Alaska Anchorage School of Engineering Fall 2010 Design Competition*. \$3000
- Timothy Menard. *Office of Undergraduate Research and Scholarship (OURS)* for FreeSim\_Mobile, Fall 2010. \$1000

**Presentations** – NOTE: This list does not include presentations associated with publications at conferences. All of the papers published in conferences had associated presentations.

29. Miller, Jeffrey. “Academic Profession and Intelligent Systems Research.” *Guest Lecture – Engineering Seminar (ENGR 192/292)*, University of Alaska Anchorage, September 13, 2011.
28. Miller, Jeffrey. “Using Vehicle Probes for Accurate Travel Time Estimation.” *Institute of Transportation Engineers (ITE) Western District Annual Meeting*, Anchorage, Alaska, July 13, 2011.
27. Miller, Jeffrey. “IEEE 74<sup>th</sup> Vehicular Technology Conference.” *Presentation at IEEE 73<sup>rd</sup> Vehicular Technology Conference*, Budapest, Hungary, May 16, 2011.
26. Miller, Jeffrey. *Engineering Graduation Luncheon*, Anchorage, Alaska, April 21, 2011.
25. Miller, Jeffrey. *Acceptance of Anchorage Convention and Visitors’ Bureau Seymour Award (Meeting Champion of the Year, 2011)*, Anchorage, Alaska, April 15, 2011.
24. Miller, Jeffrey. “UAA Engineering Programs.” *BP Explorers’ Visit to UAA School of Engineering*, Anchorage, Alaska, April 12, 2011.
23. Miller, Jeffrey, Teresa Brewer. “Real-Time Freight Tracking using GPS and Cellular Transceivers for Transportation and Community Planning.” *American Planning Association 2011 National Planning Conference*, Boston, Massachusetts, April 9, 2011.
22. Miller, Jeffrey. “IEEE Alaska Report.” *IEEE Spring 2011 Northwest Area Meeting*, Richland, Washington, April 2, 2011.
21. Miller, Jeffrey. “Distributed Real-Time Vehicular Data Gathering through a Vehicle-to-Infrastructure Network in Anchorage.” *University of Alaska Anchorage, Complex Systems Lecture*, Anchorage, Alaska, March 25, 2011.
20. Miller, Jeffrey. “IEEE Intelligent Transportation Systems Society VP Administrative Activities Report.” *IEEE Intelligent Transportation Systems Executive Committee Meeting*, Orlando, Florida, February 5, 2011.
19. Miller, Jeffrey. “Fundamentals of Engineering Exam Review – Computers.” *University of Alaska, Anchorage School of Engineering FE Refresher Series, Fall 2010*, University of Alaska, Anchorage, October 21, 2010.
18. Miller, Jeffrey. “Real-Time Data Collection through ITS Architectures in Anchorage.” *Alaska Community Transportation Conference, ITS Alaska Annual Meeting*, Fairbanks, Alaska, October 6, 2010.
17. Miller, Jeffrey. “IEEE 14<sup>th</sup> Intelligent Transportation Systems Conference.” *Presentation at IEEE 12<sup>th</sup> Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 22, 2010.
16. Miller, Jeffrey (presented by James Irvine). “IEEE 74<sup>th</sup> Vehicular Technology Conference.” *Presentation at IEEE 72<sup>nd</sup> Vehicular Technology Conference*, Ottawa, Canada, September 7, 2010.
15. Miller, Jeffrey. “Anchorage Real-Time Traffic Gathering and Distribution.” *Intelligent Transportation Society of Alaska Membership Meeting*, Anchorage, Alaska, July 13, 2010.
14. Miller, Jeffrey. “FreeSim Overview and Current Status.” *Pangomedia Developer Meeting*, Anchorage, Alaska, May 14, 2010.

13. Miller, Jeffrey. "Determining Real-Time Flow of Traffic in Anchorage using Vehicle Probes." *Anchorage Freight Advisory Committee Meeting*, Municipality of Anchorage, Alaska, April 12, 2010.
12. Miller, Jeffrey. Welcome Speech for *Arctic Ice and Snow Roads 2010 Conference*, Anchorage, Alaska, March 30, 2010.
11. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Spring 2010*, University of Alaska Anchorage, March 25, 2010.
10. Miller, Jeffrey. "IEEE 70<sup>th</sup> Vehicular Technology Conference." *Presentation at IEEE 69<sup>th</sup> Vehicular Technology Conference*, Barcelona, Spain, April 28, 2009.
9. Miller, Jeffrey. "Dynamic Intelligent Transportation Systems." *Guest Lecture – American Indian Science and Engineering Society (AISES)*, University of Alaska Anchorage, April 3, 2009.
8. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Spring 2009*, University of Alaska Anchorage, March 31, 2009.
7. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Fall 2008*, University of Alaska Anchorage, October 23, 2008.
6. Miller, Jeffrey. "Jeffrey Miller's Current Research." *Bachelor of Science in Engineering Faculty Research Seminar*, University of Alaska Anchorage, October 14, 2008.
5. Miller, Jeffrey. "Career in Computer and Software Engineering." *Guest Lecture – Engineering Seminar (ENGR 192/292)*, University of Alaska Anchorage, September 30, 2008.
4. Miller, Jeffrey. "E-Week – Exciting Era of Engineering." *E-Week Presentation*, Bartlett High School, Anchorage, Alaska, February 13, 2008.
3. Miller, Jeffrey. "Intelligent Transportation Systems." *Guest Lecture – Transportation Engineering (CE 402)*, University of Alaska Anchorage, October 24, 2007.
2. Miller, Jeffrey. "A Future in Computer Science." *Guest Lecture for IEEE Student Chapter*, California State University, Los Angeles, November 14, 2002.
1. Miller, Jeffrey. "Web Services." *Directed Research Project (CS 590)*, University of Southern California, April 2002.

### **Professional Course Development**

14. ITT/ESI, Web Programming in VB.NET (WT1220), July 2011.
13. ITT/ESI, Systems Analysis (PM3140), May 2011.
12. International Education Corporation, System Architecture CompTIA A+ (CT2009-110), April 2010.
11. International Education Corporation, Windows Applied Computing CompTIA A+ (CT2009-120), April 2010.
10. Walden/Laureate University, Computer Forensics (CMIS 4104), August 2009.

9. Walden/Laureate University, Information Security Techniques II (CMIS 4103), May 2009.
8. Walden/Laureate University, Information Security and Privacy (CMIS 4101), March 2009.
7. International Education Corporation, Network Architecture (Module D in Computer Systems Technician Program), November 2008.
6. International Education Corporation, Client Operating Systems (Module E in Computer Systems Technician Program), November 2008.
5. Strayer University, System Modeling Theory (CIS212), September 2008.
4. Strayer University, Data Warehousing Systems (CIS522), September 2008.
3. Baker College, Internet and Web Security (ITS405), August 2008.
2. Strayer University, Java Programming II (CIS407), August 2007.
1. Westwood College, Compiler and Interpreter Design (SG400), July 2006.

### **Professional Training**

1. State of Alaska, Department of Natural Resources, “AJAX for Java Developers”, March 2009.

### **Grants**

24. BP – Robotics, GPS Tracking, and Rapid Prototyping Summer Camp Initiative for Middle and High School Students. May 1, 2011-August 15, 2011. \$80,000, PI
23. Alaska University Transportation Center – “Information Gathering Infrastructure towards Intelligent Transportation.” August 1, 2011-December 31, 2012. \$85,000, PI
22. University of Alaska, Anchorage – “Information Gathering Infrastructure towards Intelligent Transportation.” August 1, 2011-December 31, 2012. \$85,000, PI
21. Alaska University Transportation Center – “Gathering of Vehicular Parameters in a Vehicle-to-Infrastructure Intelligent Transportation System.” August 1, 2010-December 31, 2011. \$99,546, PI
20. University of Alaska, Anchorage – “Gathering of Vehicular Parameters in a Vehicle-to-Infrastructure Intelligent Transportation System.” August 1, 2010-December 31, 2011. \$99,611, PI
19. University of Alaska, Faculty Development Grant – “Determining Time to Traverse and Origin-Destination Matrices using Probe Vehicles.” July 1, 2010-December 31, 2010. \$4500, PI
18. Alaska University Transportation Center – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. \$84,639, PI
17. University of Alaska, Anchorage – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. \$72,252, PI
16. Alaska Natives in Science and Engineering Program (ANSEP) Grant – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. \$12,394, PI
15. United States Department of Energy Grant – “A First Assessment of U.S. In-Stream Hydrokinetic Energy Resources since the 1986 NYU Study.” January 10, 2010-June 30, 2011. \$120,000, Team Member

14. University of Alaska, Anchorage, Engineering K-12 Outreach, Bridging, and Summer Camps – “UAA School of Engineering Summer Robotics/Mechatronics Workshop and Competition.” May 1, 2010-May 31, 2010. \$59,996, Co-PI
13. Alaska Natives in Science and Engineering Grant – “UAA School of Engineering Summer Robotics/Mechatronics Workshop and Competition.” May 1, 2010-May 31, 2010. \$30,000, Co-PI
12. University of Alaska, Faculty Development Grant – “Distributed Vehicle Gathering for Intelligent Transportation System Applications”, July 1, 2009-December 31, 2009. \$4500, PI
11. University of Alaska, Research Travel Grant – IFAC Symposium on Control of Transportation Systems, Redondo Beach, California, USA, September 2009. \$400.38, PI
10. University of Alaska, Special United Academics Research Travel Grant – IEEE 69<sup>th</sup> Vehicular Technology Conference, Barcelona, Spain, April 26-29, 2009. \$500, PI
9. Xilinx University Program Donation – 5 Digilent Inc. Spartan 3E FPGA Boards for Digital Circuits Design course (CSE342). April 2009. \$745, Recipient
8. University of Alaska, Special United Academics Research Travel Grant – IEEE Intelligent Vehicles Symposium, Xi’an, China. June 3, 2009-June 6, 2009. \$1000, PI
7. University of Alaska, Research Travel Grant – “Presentation of Alaska Intelligent Transportation Systems.” University of Southern California, Los Angeles, California, March 2009. \$409.83, PI
6. Alaska Natives in Science and Engineering Program (ANSEP) Grant – “Acquisition and Analysis of Vehicular Tracking Technology in Anchorage.” January 1, 2009-December 31, 2009. \$10,000, PI
5. University of Alaska, Faculty Development Grant – “Determination of Probabilities of Factors in Vehicle Crashes using Intelligent Transportation Systems.” July 1, 2008-December 31, 2008. \$4500, PI
4. University of Alaska, Research Travel Grant – IEEE Intelligent Transportation Systems Conference 2008, Beijing, China. October 12, 2008-October 15, 2008. \$316.16, PI
3. Alaska University Transportation Center – Additional support for IEEE 4<sup>th</sup> International Intelligent Vehicles Symposium, Eindhoven, The Netherlands. June 3, 2008-June 6, 2008. \$2000, Recipient
2. University of Alaska, Faculty Development Grant – “Algorithms and Data Structures for the Application of a Super-Vehicle in a Hybrid Vehicle-to-Vehicle-to-Infrastructure (V2V2I) Mobile Ad-Hoc Network (MANET) Architecture.” January 1, 2008-June 30, 2008. \$4500, PI
1. University of Alaska, Special United Academics Research Travel Grant – IEEE Intelligent Vehicle Symposium 2008, Eindhoven, The Netherlands. June 3, 2008-June 6, 2008. \$750, PI

### Referred Journal/Magazine Publications

3. *In Preparation*. Miller, Jeffrey, Timothy Menard. “Determining Continuous Traffic Flow from Discrete Vehicle GPS Data.” *To be submitted to IEEE Transactions on Intelligent Transportation Systems*.
2. *Under Review*. Miller, Jeffrey, Sun-il Kim, Timothy Menard. “Overview and Analysis of Intelligent Transportation Systems Traveling Salesman Problem (ITS-TSP).” *IEEE Transactions on Intelligent Transportation Systems*.
1. Miller, Jeffrey. “Dynamically Computing Fastest Paths for Intelligent Transportation Systems.” *IEEE Intelligent Transportation Systems Magazine*, Volume 1, Number 1, Spring 2009.

### Refereed Conference Publications – NOTE: All of the papers that were published in conference proceedings had associated presentations at the respective conference.

19. Miller, Jeffrey. “Assessing the Probability of a Vehicle Crash based on Vehicular Networking Penetration Rates.” *Submitted to IEEE 3<sup>rd</sup> Vehicular Networking Conference*, Amsterdam, The Netherlands, November 2011.
18. Menard, Timothy, Jeffrey Miller, Michael Nowak, David Norris. “Comparing the GPS Capabilities of the Samsung Galaxy S, Motorola Droid X, and the Apple iPhone for Vehicle Tracking using FreeSim\_Mobile.” *IEEE 14<sup>th</sup> Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
17. Menard, Timothy, Jeffrey Miller. “Comparing the GPS Capabilities of the iPhone 4 and iPhone 3GS for Vehicle Tracking using FreeSim\_Mobile.” *IEEE 7<sup>th</sup> Intelligent Vehicles Symposium*, Baden Baden, Germany, June 2011.
16. Menard, Timothy, Jeffrey Miller. “FreeSim\_Mobile: A Novel Approach to Real-Time Traffic Gathering using the Apple iPhone.” *IEEE 2<sup>nd</sup> Vehicular Networking Conference*, Jersey City, New Jersey, December 2010.
15. Miller, Jeffrey, Sun-il Kim, Timothy Menard. “Intelligent Transportation Systems Traveling Salesman Problem (ITS-TSP) – A Specialized TSP with Dynamic Edge Weights and Intermediate Cities.” *IEEE 13<sup>th</sup> Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 2010.
14. Miller, Jeffrey, Sun-il Kim, Muhammad Ali, Timothy Menard. “Determining Time to Traverse Road Sections based on Mapping Discrete GPS Vehicle Data to Continuous Flows.” *IEEE 6<sup>th</sup> Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.
13. Miller, Jeffrey. “Analysis of the Traveling Salesman Problem with a Subset of Intermediate Cities and Dynamic Edge Weights used with Intelligent Transportation Systems.” Invited paper at *IEEE 7<sup>th</sup> International Conference on Information, Communications, and Signal Processing*, Fisherman’s Wharf, Macau, China, December 2009.
12. Miller, Jeffrey, Muhammad Ali. “Dynamic Fastest Paths with Multiple Unique Destinations (DynFast-MUD) – A Specialized Traveling Salesman Problem with Intermediate Cities.” *IEEE 12<sup>th</sup> Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
11. Miller, Jeffrey. “Analysis of Fastest and Shortest Paths in an Urban City Using Live Vehicle Data from a Vehicle-to-Infrastructure Architecture.” *12<sup>th</sup> International Federation on Automatic Control (IFAC) Symposium on Control in Transportation Systems*, Redondo Beach, California, USA, September 2009.

10. Miller, Jeffrey. "Distributed Urban Data Gathering in a Vehicle-to-Infrastructure Architecture." *2009 National Rural Intelligent Transportation Systems Conference*, Seaside, Oregon, USA, August 2009.
9. Miller, Jeffrey. "Fastest Path Analysis in a Vehicle-to-Infrastructure Intelligent Transportation System Architecture." *IEEE 5<sup>th</sup> Intelligent Vehicles Symposium*, Xi'an, Shaanxi, China, June 2009.
8. Miller, Jeffrey. "Analysis of Vehicle Lane Changes for Determining Fastest Paths in the V2V2I ITS Architecture." *IEEE 11<sup>th</sup> Intelligent Transportation Systems Conference*, Beijing, China, October 2008.
7. Miller, Jeffrey. "Aggregation Algorithms in a Vehicle-to-Vehicle-to-Infrastructure (V2V2I) Intelligent Transportation System Architecture." *3<sup>rd</sup> International Symposium of Transport Simulation*, Queensland, Australia, August 2008.
6. Miller, Jeffrey. "Fastest Path Determination at Lane Granularity using a Vehicle-to-Vehicle-to-Infrastructure (V2V2I) Intelligent Transportation System Architecture." *IEEE 4<sup>th</sup> International Workshop on Vehicle-to-Vehicle Communications* in conjunction with *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
5. Miller, Jeffrey. "Vehicle-to-Vehicle-to-Infrastructure (V2V2I) Intelligent Transportation System Architecture." *IEEE 4<sup>th</sup> Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
4. Miller, Jeffrey, Ellis Horowitz. "FreeSim – A Free Real-Time Freeway Traffic Simulator." *IEEE 10<sup>th</sup> Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
3. Miller, Jeffrey, Ellis Horowitz. "FreeSim – A V2V and V2R Freeway Traffic Simulator." *IEEE 3<sup>rd</sup> International Workshop on Vehicle-to-Vehicle Communications* in conjunction with *IEEE 3<sup>rd</sup> Intelligent Vehicles Symposium*, Istanbul, Turkey, June 2007.
2. Miller, Jeffrey, Ellis Horowitz. "Algorithms for the Real-Time Processing of Traffic Data." *IEEE 9<sup>th</sup> Intelligent Transportation Systems Conference*, Toronto, Ontario, Canada, September 2006.
1. Miller, Jeffrey. "Characterization of Data on the Gnutella Peer-to-Peer Network." *IEEE 1<sup>st</sup> Consumer Communication and Networking Conference*, Las Vegas, Nevada, USA, January 2004.

### Other Refereed Publications

1. Miller, Jeffrey. "FreeSim – A Free Real-Time V2V and V2I Freeway Traffic Simulator." *IEEE Intelligent Transportation Systems Society Newsletter*, December 2007.

### Supplement to Book

1. Miller, Jeffrey. Lab Manual to Accompany [The Web Application Hacker's Handbook: Discovering and Exploiting Security Flaws](#) by Davydd Stuttard and Marcus Pinto, ISBN 978-0-470-17077-9, August 2008.

### Other Publications

2. Miller, Jeffrey. IEEE Intelligent Transportation Systems Magazine Guest Editorial – Macroscopic and Microscopic Traffic Simulators. [IEEE Intelligent Transportation Systems Magazine](#), Volume 2, Number 4, Fall 2010.
1. Miller, Jeffrey. IEEE Vehicular Technology Conference Fall 2009 General Chair Message. [IEEE Vehicular Technology Conference Fall 2009 Program](#), September 2009.

## Experience

**Associate Professor, Computer Systems Engineering, July 2011-present**

**Assistant Professor, Computer Systems Engineering, August 2007-June 2011**

**Chair, Bachelor of Science in Engineering Department (Computer, Electrical, and Mechanical Engineering), February 2011-present**

University of Alaska Anchorage – Anchorage, Alaska, August 2007-present

- Courses
  - Introduction to C Programming for Engineers (CSE 205/294A)
  - Object-Oriented C++ Programming for Engineers (CSE 215/294B)
  - Engineering Systems Administration (CSE 394B)
  - Digital Circuits Design (CSE 342/394D)
  - Computer Networking for Engineers (CSE 355/394F)
  - Design of Computer Systems Engineering (CSE 438)
  - VLSI Circuit Design (CSE442)
  - Network Security (CSE465)
  - Elements of Electrical Engineering (ES 309)
- Authored introductory programming, object-oriented programming, systems administration, digital circuits, computer networking, operating systems, FPGA, and VLSI classes for engineering students focused on applied applications in various engineering disciplines
- Computer Systems Engineering Advisor for the department
- Led Computer Systems Engineering department in preparing ABET documents for securing accreditation, which we received in fall 2008 and again in fall 2010
- Started and facilitated Faculty Research Series where each faculty member in the engineering school presents his research to the rest of the faculty during the semester in 2009
- Hosted Alaska Department of Transportation 511 Training Event in March 2010
- Hosted Apple iPhone Development Training Event in April 2010
- Coordinated end-of-semester Engineering Competition for all School of Engineering students in December 2010
- Committees
  - School of Engineering Executive Committee, 2011-present
  - Chair of School of Engineering Web Site Steering Committee, 2009-present
  - Program Chair, Computer Systems Engineering ABET Visit, fall 2010
  - Computer Systems Engineering Advising Committee, 2007-present
  - Computer Systems Engineering Equipment Committee, 2007-present
  - School of Engineering Computer Committee, 2007-present
  - Computer Systems Engineering/Electrical Engineering 2008 Faculty Search Committee
  - Computer Systems Engineering/Electrical Engineering 2009 Faculty Search Committee
  - United Academic Board Academic Computing Distance Learning and Instructional Technology Committee, 2008-2009
  - United Academic Board General Education Requirements Committee, 2008-2009
  - Institutional Learning Outcomes and Assessment Task Force, 2008-2009
  - Research, Scholarship, and Creative Activity Review and Evaluation Team, 2010

### **Online Lecturer, Information Technology**

American Public University System/American Military University System – December 2009-present

- Facilitated online education for APUS/AMUS (mostly active or retired military) students around the world
- Courses
  - Application Development (ENTD 411)
  - Systems Engineering (ENTD 412)
  - Enterprise Development using ASP.NET (ENTD 462)
  - Enterprise Development using C# (ENTD 463)
  - Enterprise Development using .NET (ENTD 464)
  - Enterprise Development using J2EE (ENTD 481)
  - Relational Database Concepts (INFO 221)
  - Local Area Network Technologies (ISSC 340)
- Introduction to Networking (ISSC 341)

### **Senior Solutions Strategist**

Pangomedia, Inc. – Anchorage, Alaska, May 2009-August 2010

- Architected high level solutions for clients, working with the development team to see the project from conception through completion
- Identified clients and projects, including ongoing software development projects, IT consulting placement, and fixed-cost projects
- Solicited business by being an active and participating member of the Alaska business community, performing build/buy analyses, and responding to requests for proposals (RFP)

### **Senior Programmer / Analyst**

Resource Data, Inc. – Anchorage, Alaska, April 2008-October 2008

- Consulted at Chenega Federal Systems, working on the Joint Supply Management Module project for the US Department of Defense concerning fuel and ammunition inventory tracking
- Utilized Struts, Spring, Java, J2EE, JDBC, Hibernate, Ajax, and Web Services in the SCRUM software development methodology
- Re-architected the system as new requirements forced a redesign of the application
- Acted as a team lead for four developers and one database administrator

### **Computer Science Lecturer**

California State University, Los Angeles – Los Angeles, California, February 2002-August 2007

- Courses
  - Introduction to Web Site Development (CS120)
  - Introduction to SQL and Databases (CS122)
  - Introduction to Programming (CS201)
  - Introduction to Object-Oriented Programming (CS202)
  - Programming with Data Structures (CS203)
  - C Programming (CS242)
  - Computer Ethics in the Information Age (CS301)
  - Algorithm Design and Analysis (CS312)
  - Web and Internet Programming (CS320)
  - Introduction to Automata Theory (CS386)
  - Java for C++ Programmers (CS454 – Special Topics)
  - Enterprise Architecture (CS454 – Special Topics, now CS420)
  - Compilers (CS488)
  - Undergraduate Computer Science Wrap-Up Course (CS490)
  - Directed Study (CS499)
- Led a team of undergraduate students in a directed research (CS499) in the design and implementation of a compiler project to be used for the programs in the compiler class (CS488)
- Aided in preparing course documents for ABET accreditation
- Voted 2002 Professor of the Year by the students in the Computer Science department – 1<sup>st</sup> lecturer ever to be given this award
- Authored CS420 class on enterprise web architecture, covering RMI, CORBA, Web Services, and different MVC architectures, including Spring and Struts

### **Independent Consultant**

Sigma Coding, LLC – May 2005-December 2007

- Performed small to mid-size programming tasks for different companies using predominantly Java, HTML, and Flash
- Automated the drafting of legal documents for a law firm involved with estate planning, including creation of diagrams, flow charts, and Microsoft Word generation
- Migrated a Microsoft Access application to a multi-user web-based application
- Created a socket-based Flash chat application with multiple simultaneous users supporting multiple agents over a Java-based chat server

### **Founder / Chief Executive Officer**

Imaginary Technology, LLC – Burbank, California, August 2005-April 2006

- Started a company that created handheld and standalone point of sale systems for the restaurant industry
- Worked with restaurant owners and potential clients to determine the requirements for the point of sale system
- Managed a team of 5 developers to implement the requirements and install the system
- Responsible for buying hardware, hiring personnel, obtaining investment money, selling the system, and working with owners to improve the system

### **Application Specialist – Technical Lead / Senior Architect**

21<sup>st</sup> Century Insurance – Woodland Hills, California, February 2005-May 2005

- Worked as a lead and architect on a team responsible for all online payments of insurance policy premiums, including eCheck and direct-debit payments
- Coded in Java on a Websphere-based application using Struts
- Wrote a J2EE tool to allow customer service representatives to see all of the billing history of a customer and all activity that has ever occurred on a customer's policy

### **Director of Engineering**

inQ, Inc.– Agoura Hills, California, July 2004-February 2005

- Responsible for the personnel of the IT department and grew the development/QA team from 2 to 6 within the first 6 months
- Managed a team of 4 programmers and 2 QA engineers on a multi-threaded chat and outbound call application to up-sell online customers of client web sites
- Communicated with clients and partners on all technical issues related to interfacing our application with theirs
- Implemented a complete software development process for use by all departments of the company to interact with the IT department for any requests

### **Technical Consultant**

SBC – Smartpages.com – Pasadena, California, July 2003-July 2004

- Managed a team of 12 programmers on an ongoing project to fix all issues with the production site and reported to the client weekly on the status of the issues
- Responsible for improving and implementing technical processes for the development team
- Created and initiated coding standards, then enforced the standards by performing code inspections on all modified code checked in to the version management software
- Involved in design of documentation templates and other process improvement strategies to aid in increasing the CMM level of the team to CMM Level 3 by 4<sup>th</sup> quarter of 2005
- Led team in initiating unit testing (using JUnit) and customized exception handling to reduce the number of bugs and the severity of bugs discovered by the quality assurance team

### **Graduate Research Assistant**

Information Sciences Institute (ISI) – Marina Del Rey, California, May 2002-July 2003

- Used PHP4.0 running on Red Hat Linux 7.1 to create a tree structure for browsing the objects of a specified LDAP server
- Created a Service Data Browser using Java Swing to display the service data returned as a web service SOAP message from different providers in different formats, including raw XML, a tree structure, and a status bar
- Designed an interface to allow other programmers to create their own Visualizers to display the service data however they would like in the Service Data Browser
- Created a web-based interface using JSP and JavaBeans to browse specific service data through the use of web services and display the data in a user-friendly tree-based format

### **Principal Software Engineer**

Corticon Technologies, Inc. – Culver City, California, June 2001-May 2002

- Worked as a technical lead on an 8-member project to design and develop an application to automate business rule generation
- Researched augmented decision tables to design efficient algorithms for optimization of business rules, such as expand, collapse (based on an algorithm designed by Dr. Richard N. Shiffman of Yale University), ambiguity checking, and completeness checking
- Helped to design a parser/compiler for creating Java files from business rule statements that could be used with any plug-in architecture
- Technologies included Weblogic, ILOG, JUnit, Ant, and XML (W3C and JDOM)

### **Programming Consultant**

Dacor – Pasadena, California, January 2001-June 2001

- Developed B2B e-commerce site using JSPs, Servlets, JavaBeans, JDBC, and XML that allowed distributors and retailers to automate the ordering of their products –
- Created middleware application using Java to connect a SQL Server database to an existing Legacy system database
- Requested software and database applications to purchase that would best suit the company's growing needs

### **Systems Administrator / Programmer**

Busybox.com – Century City, California, February 2000-January 2001

- Designed and maintained www.busybox.com (corporate site) and promo.busybox.com (promotions site), using HTML, JavaScript, JSP, Servlets, JDBC, and JavaBeans
- Installed necessary components for web applications, including servlet containers, video streaming software, and web servers on Windows NT Server 4.0
- Installed, configured, and developed with IBM Websphere Application Server and Allaire JRun Application Server, using IBM VisualAge for Java and Websphere Studio
- Completed IBM WebSphere Application Server 3.5 certification training and IBM Visual Age for Java certification training

### **Advanced Java Instructor / Teaching Assistant**

Learning Tree University – Chatsworth, California, December 1999-March 2001

- Taught beginning and advanced Java concepts to classes of corporate students that consisted of programmers and managers
- Topics included: AWT, Swing, Networking, File I/O, Web Servers, Servlets, JSP, Reflection, Multi-threaded Applications, Design Patterns, JDBC, XML

### **Technical Skills**

Operating Systems - Unix (Solaris, Linux), Microsoft Windows, DOS

Languages – Java (including J2EE), XML (W3C, JDOM, SOAP), XSL/XSLT, Flash (including Flex and ActionScript), C, C++, C#, MFC, SQL, Perl, CSH, Bash, HTML, CSS, JavaScript (including AJAX), ASP, PHP, and Assembly for the M68000

Java Technologies - Servlets, JSP, JDBC, JavaBeans, EJB, Swing, AWT, JNDI, JNI, JMS, JSF, JAXP

Mapping Technologies – Google Maps for Flash, Yahoo! Maps

MVC Frameworks - Spring, Struts

OR Mapping - Hibernate

Application Servers - Apache Tomcat, IBM Websphere, Adobe JRun, BEA Weblogic, Caucho Resin, ATG Dynamo, ILOG Inference Engine

IDEs - Borland JBuilder, IntelliJ, Eclipse, IBM VisualAge for Java, IBM Websphere Studio, Microsoft Visual Studio

Databases – Oracle 9i, IBM DB2, MySQL, Microsoft SQL Server, Microsoft Access