Steven Zellers

Transportation Systems Engineer

Cherry Hill, NJ - Email me on Indeed: indeed.com/r/Steven-Zellers/c011bc8545f4aa56

Senior systems engineer, human-machine interface (HMI) engineer, transportation planner, and project manager with 15+ years of systems technology design, development, and operational deployment experience. Knowledgeable with principles of user-centered design and human-centered systems engineering (HSCE), product design and rapid prototyping, conventional systems engineering design, and displays and controls for transportation and logistics. Also experienced with requirements analysis, planning, systems design, development, and deployment, hardware engineering, software engineering, network engineering, system testing, technical writing, and proposal capture. Expert systems integration engineer; works with stakeholders to achieve transformative results.

Key Credentials:
• Certified Human Factors Professional (CHFP), certified by the Board of Certification in Professional Ergonomics
• Leadership in Energy and Environmental Design Accredited Professional (LEED-AP)
Willing to relocate: Anywhere
Authorized to work in the US for any employer

WORK EXPERIENCE

Train Systems Engineer

Alstom Transport - Philadelphia, PA - September 2015 to Present

Train Systems Engineer in the Rolling Stock Engineering department of Alstom Transportation.
• Responsible for development of train systems of Next Generation High Speed Train (NGHST) for Amtrak.
• Review and comment on tenders and concepts of operations. Provide new context to concepts of operations and operational context documents for train design that focus on usability and human machine interface (HMI).
• Responsible for requirements management, deployment, and implementation in IBM Rational DOORS.
• Developed automatic requirements indexing software in Microsoft Visual Basic for Applications.
• Responsible for subsystems high level architecture design and development; e.g. Train door systems, fire detection and suppression, and design for individuals with disabilities.
• Made multiple trips to France to support Train-level requirements development and cascading to subsystems.

Human Machine Interface Engineer

GE Transportation - May 2014 to Present

Human Machine Interface Engineer(HMI) in the Locomotives and Services Manufacturing Division of GE.

• Project manager of multi-language human machine interface for international locomotive division, GE Transportation.
• Responsible for languages and translations on the GE Locomotive series HMI. Company liaison with 3rd party translation service providers.
• Responsible for large data analytics for approx. ¼ million display elements in 13 different languages. Developed custom analytics in C, Visual Basic, and SQL server.
• Evaluated locomotive UIs for various product sets against human factors design standards and reported deficiencies; logged software/operational defects in IBM ClearCase.
• Software development of prototyping tools and display concepts for railroad HMI.

• Developed advanced locomotive operator's display concept storyboard for NextGen Locomotive HMI corporate council.
• Requirements management, publishing, and testing using Rational DOORS.

Senior Systems Engineer

Xerox Transportation - February 2012 to March 2013

Systems Engineer in the Transportation Systems Solutions Group, Xerox Transportation.

• Maintenance management of electronic tolling systems and components.
• Electronic Toll Collection facility construction project management. Oversee site electrical and systems integration tasks.
• Product engineering and system development, electronic toll collection system (ETC) displays, controls, and network systems. Coordinate new product development efforts with suppliers, vendors, etc.
• Develop product environmental test plans for tolling equipment. Coordinate testing with environmental laboratory testing facilities.
• Worked with vendor to implement SNMP trap-based software architecture on PLC industrial controls communicating with MS Windows.
• Customer support to the Port Authority of New York and New Jersey - Tolling systems.
• GUI Application prototyping, electronic toll collection system displays and controls. Created prototype toll operator's display using C, C++, C# and .NET with Microsoft Visual Studio. Performed C# component integration (software engineering). Deployed system for hardware-in-the-loop testing purposes to test group.
• Conduct image processing research using MATLAB: feature detection and extraction, MATLAB coding, license plate recognition algorithms. Converted entire image processing application from C to .NET, developed graphical user interface.

Human Factors Engineer

Cargo Security Management International - 2011 to 2012

Developed Concept of Operations for Airport Remote Screening for the Department of Homeland Security.

• Managed development of Concept of Operations for Airport Remote Screening for the Transportation Security Administration and Department of Homeland Security.
• Developed Human Factors Use Cases in MS Visio.
• Designed, developed, and drafted workstation concept for Screeners and Supervisors. Drafted display requirements and developed user interface concept.
• Drafted business case for Airport Remote Screening for the Department of Homeland Security.

Senior Software Engineer III

Lockheed Martin Corporation - 2010 to 2011

Human factors engineer to Lockheed Martin's En Route Automation Modernization (ERAM) Air Transport Computer-Human Interface (CHI) team, providing specific systems engineering and human factors expertise.

• Human factors engineering and user interface development for air traffic control applications. Storyboarding and prototyping of user interface behavior in a variety of environments including MS Office suite (Excel, Access, Visio, etc.), 2D storyboarding tools (Photoshop, Powerpoint, Corel Draw, etc.), and 3D time-sequenced prototyping tools: MS Flash and web-browser-based platforms.
• Designed, built, and tested standalone aviation Data communications prototypes for Web clients using Java/ Javascript/JQuery with dynamic HTML.

• Served as day-today ERAM CHI team point-of-contact with the Lockheed Martin software developers in Eagan, MN. Convey coding requests and broker concerns between developers and Rockville human factors and systems engineering staff. Maintain daily/weekly software checklists.
• Developed future concept user interface and requirements for Non-radar display, and future controller workstation. Flight plan data structure design and air traffic data block specification.
• Developed performance specification for future flight plan data blocks, En Route Automation System (ERAM).
• Conducted user interface analysis of Oceanic Air Traffic Control System and reported to Product Implementation Team, Transportation Group, Lockheed Martin Transportation Systems.
• XML, UML, HTML, DHTML schema design; HTML-based Web-client prototyping.

Program Manager

AECOM - 2009 to 2010

Acting Program Manager of the Enterprise Geographic Information Systems (E-GIS) Program at Denver International Airport (DIA).

• Managed team of Oracle GIS Database developers maintaining Enterprise GIS at DIA.
• Developed a comprehensive GIS Data Standard and Metadata Standard for DIA. The standard is one of the first in the United States to incorporate the new FAA GIS Standard, FAA AC 150/5300-18B, and the Spatial Data Standard for Facilities and Infrastructure (SDSFIE).
• Co-developed the DIA GIS Roadmap, which is a two-year phased project schedule. It includes over 100 subtasks. Implemented in both Primavera and Microsoft Project.
• Developed and authored AECOM scope of work (SOW) for E-GIS.
• Airport infrastructure specification with SQL Server; SQL Server Express using SDSFIE infrastructure model.
• Utilization of UML high-level design system implementation tools within Visual C++ to model applications.

Senior Consultant

Booz Allen Hamilton - 2006 to 2009

Human Factors consultant to Federal Railroad Administration, Equipment and Operating Procedures Research Division. Proposal writing and prototyping coordinator and lead engineer.

• Developed an operational concept and functional requirements for a locomotive moving map display (LMMD) for use by the railroads.
• Primary developer of LMMD prototype using a HSCE design approach. The LMMD prototype delivered to the FRA was one of the first to incorporate GIS and GPS-based moving map display concepts to the main-line passenger and freight operator environment. Worked closely with locomotive engineers on test rides to develop requirements and concept for LMMD.
• Delivered a storyboard-based Concept of Operations for passenger and freight rail to the FRA and developers. The Conops was paired with a prototype development activity executed by Booz Allen.

Systems Engineering Lead, Advanced Technologies and Oceanic Procedures (ATOP) Post-Implementation Review (PIR) Team

• Conducted Human factors-focused Post Implementation Review of the FAA's Oceanic air traffic control system, ATOP. The PIR process is dictated by the U.S. Office of Management and Budget (OMB-300 AMS) and applies to large information technology capital asset acquisition programs including air traffic control systems.
• Developed performance measures to benchmark compliance of O-ATC system in reference to OMB-300 Acquisition Management System (AMS). Developed performance criteria of system safety, usability, efficiency, and ease-of-use.

• Conducted user surveys and interviewed air traffic controllers at all Oceanic sites - Anchorage, Oakland, and Ronkonkoma, NY, and the FAA Technical Center.
• Developed performance measures and evaluated Oceanic controller workstations for functionality, operational effectiveness, and usability. Statistically analyzed and reported objective data measures.
• Co-author of comprehensive PIR final report to FAA Chief Scientist for Human Factors.
• Developed Traffic Flow Management operational procedures for National Integrated Airspace; co-author of High Altitude En Route TFM Procedures and High Altitude Aviation Data Communications Concept of Operations.

Aviation Planner

San Francisco International Airport - San Francisco, CA - 2004 to 2006

Intern and Consultant to the Airport Deputy Director of Planning, Design and Construction

• Developed subcontractor requests for information (RFIs), requests for proposals (RFPs), and requests for qualifications(RFQs) for the Planning group, and participated in response evaluations
• Designed, developed, and implemented software to automate the process of airport gate utilization reporting and analysis for the Planning department. The program includes an aviation operations database loader, flight matching algorithms, and a report generator that outputs Microsoft Excel spreadsheets of airport operations activity. The software includes an analysis of airport gate utilization efficiency and a gap analysis tool.
• Participated in team to evaluate airport land-use planning alternatives.
• Conducted a lease-analysis and developed recommendations for various Fixed-based Operator (FBO) configuration proposals at SFO
• Conducted an impact analysis of new large aircraft (NLA) operations at SFO, and briefed Senior Management. The analysis included impacts to safety, services, and infrastructure; for example passenger loading bridges (PLBs) and boarding operations.

Systems Engineer

Rockwell Collins - 1997 to 2002

Technical staff member of Air Traffic Management Systems Group, Advanced Technology Center, Rockwell Collins

• Technical contributor to the NASA Synthetic Vision proposal team and Airbus A380 cockpit proposal team, leading to significant program wins for Rockwell Collins.
• Project and software lead of a Microsoft Windows based wireless portable flight deck (PFD) prototype system that included the display of proximity air traffic and high-resolution polygon airport maps, data-link and graphical depiction of real-time notices to airmen, 2D and 3D modes, and advanced avionics symbology concepts. He demonstrated his prototype to the industry on the Federal Aviation Administration (FAA) 737 research aircraft.
• Represented Rockwell Collins and served as co-chairman of Radio Technical Commission for Aeronautics (RTCA) SC-193 SG2, Airport Mapping Database Standards Committee, which resulted in the successful publication of DO-272, Standards for Airport Mapping Databases, which is now used by the FAA and other civil aviation organizations.
• Conducted research of flight deck cursor control devices for use with Civil aviation. Conducted experiments in equipped research vehicles and flight simulators. Developed and evaluated prototypes.
• Fault tree analysis using Human Factors Design Standard; MS Visio

Portfolio
Aviation Data Communications client example, https://www.youtube.com/watch?v=CldVmOogUD8
Electronic flight bag .NET example (complete application), https://www.youtube.com/watch?v=QA4gS264rQo
3D modeling and simulation example, https://www.youtube.com/watch?v=ToY4d8setMs

EDUCATION

Master of Science in Industrial Engineering-Human Factors
University of Iowa - High, Iowa, US

Bachelor of Science in Electrical and Computer Engineering
University of Wisconsin-Madison - Madison, WI

SKILLS

APPLICATIONS AND DEVELOPMENT TOOLS: Microsoft Access applications developer, Knowledge and experience with SQL for relational database management, Systems architecture modeling, fault tree analysis with Microsoft Visio, Project management with MS Project and Primavera, Microsoft Excel, Excel Solver, Excel Tables, CAD design with Google Sketchup, AutoCAD, AutoCAD Map, AutoCAD Civil 3D; Photoshop, MATLAB coding, image processing applications, Hyperterminal, serial terminal programming, Statistical analysis with Statistica and SAS, and Excel Solver, GIS experience with ESRI ArcGIS, ArcCatalog, ArcMap, ArcInfo and ESRI extensions, Requirements management with Rational DOORS, Defect logging, tracking and management with Rational ClearCase. SYSTEMS: MS Windows XP/Vista/7/8, Macintosh, Mac OS, UNIX, Linux, SGI IRIX; shell scripting, Network design and programming with TCP/IP, UDP, and SNMP, Hardware design and computer engineering. Electronics, wiring, telecommunications, cabling, power electronics, bread boarding, and prototyping experience, Cabinet electronics assembly, wiring, terminations, and troubleshooting, Programmable logic controllers programming and configuration, Knowledge of/working with digital oscilloscopes, multi-meters, electronic test equipment, LEED AP. COMPUTER LANGUAGES: Experienced C, C++, .NET programmer, Internet applications programming with Javascript, JQuery, HTML, MS W3C DOM, Software configuration, design, test, build, and debug management with MS Visual Studio .NET (C, C#, C++) components and other integrated development environments, Web programming CSS and HTML5\Hyper text markup languages, Visual Basic for Applications (e.g. with Access, Excel).

LINKS

https://www.youtube.com/watch?v=CldVmOogUD8

https://www.youtube.com/watch?v=QA4gS264rQo

https://www.youtube.com/watch?v=ToY4d8setMs