
STEPHEN TARTER

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SENIOR SOFTWARE ARCHITECT | DATA ENGINEERING & AI PROFESSIONAL

Summary / Objective

A highly motivated, results-driven software architect and data engineering expert with over 30 years of experience. Adept in designing, developing, and deploying robust simulation systems, embedded software, and scalable cloud solutions. Seeking challenging roles where my proven technical leadership—from pioneering simulation frameworks and container-based architectures to integrating AI and real-time data pipelines—can directly drive company success and innovation.

CORE COMPETENCIES

- Technical Leadership & Strategic Innovation
- Data Engineering, AI, & Generative Models
- Embedded Systems & Hardware Integration
- Simulation & Cockpit Systems Design
- Full SDLC, CI/CD, Agile & DevOps Methodologies
- GIS Integration & Scalable Architecture

TECHNICAL SKILLS

- **Languages:** Python, Java, C, C++, FORTRAN, C#, SQL, JavaScript, JSON, YAML, XML, HTML, Bash, tcsh, various Assembly languages, BASIC
- **Platforms/Tools:** Kubernetes, Spring Boot / Spring Framework, Docker, AWS, GCP, Azure, Eclipse, Visual Studio, Git, Hibernate, GIS (GeoServer, QGIS, OpenStreetMap, GDAL, WorldWind), Azure DevOps, Jenkins, RabbitMQ, Tomcat, Oracle, MongoDB, Bootstrap, Perforce, GIMP, Audacity, POV-Ray, MS Office
- **Operating Systems:** Linux, UNIX, Windows, Green Hills Embedded OS, Android
- **Technical Expertise:** OpenGL, ARINC 429, MILSTD 1553, J2EE, EJB, JDBC, Object-Oriented Design, Structured Analysis, X/Motif

PROFESSIONAL EXPERIENCE

Oway

Chief Technical Officer | Remote | 6/2023 – 3/2024

- Served as CTO and sole engineer for an AI-focused freight ride-sharing shipping platform hosted on AWS.
- Designed and deployed a real-time matching system integrating MapBox for route optimization, Stripe for secure payments, and Auth0 for user authentication.
- Developed Python modules to interface with AI models—translating user shipment descriptions into standardized shipping codes.
- Leveraged Kubernetes as the foundational platform for scalable, resilient deployment.

Wabtec

Senior Software Engineer | Fort Worth, TX | 9/2018 – 5/2023

- Led the design and implementation of electronic railway systems to enhance safety and operational efficiency through innovative software solutions.
- Developed the Geofence Protection for Rail Workers system using Kubernetes and GIS integrations (QGIS) to proactively safeguard track personnel.
- Integrated a GPS unit with a Windows-based system via RS-232 for real-time location tracking.
- Acted as vice scrum master in an Agile environment—overseeing pull request reviews and contributing to multiple concurrent projects.

ZedaSoft / Collinear Systems

Senior Software Architect | Fort Worth, TX | 10/2001 – 7/2017

- Designed and programmed advanced simulation systems for business development, cockpit interface evaluation, and pilot training. Developed frameworks in Java and OpenGL that powered solutions from Android handsets to multi-computer flight deck setups.
- **Container-Based Architecture (CBA):** Principal developer and co-inventor on patented simulation technology that redefined real-time simulation performance.

- **Simulation & Avionics:**
 - Led engineering for the Advanced General Aviation Research Simulator (AGARS) at FAA's Oklahoma City research center by rehosting early Silicon Graphics C simulations with a CBA solution.
 - Interfaced simulations to Garmin G1000 emulators, added HUD/HMD support, and crafted custom cockpit displays for evaluation and experimentation.
 - Provided on-site FAA support by integrating Microsoft Flight Simulator 2002 with Performer HMD displays, developing coordinate conversion algorithms, and authoring detailed trip reports to streamline scenario management.
- **Defense & Textron Collaboration:** Served as principal engineer with Textron on Scorpion Jet attack plane simulators—delivering evaluation and handling qualities simulators and providing on-site support at key industry conferences.
- **Cockpit Systems:** Developed numerous cockpit simulations for platforms including the F-22, F-16, F-35, AH64, OH58, and MH60; integrated interfaces for cockpit controls, game controllers, avionic subsystems, and emulators.
- **GIS:** Set up and maintained GIS systems (GeoServer, OpenStreetMap, PostgreSQL, WorldWind, OpenMap) to support simulation visualization and operational planning.
- Demonstrated expertise in video transcoding, synchronization, and network transmission of video content.
- Developed a demonstration port of the CBA simulation on Android.

Tensor Information Systems, Inc.

Senior Software Engineer | Fort Worth, TX | 2/2000 – 7/2001

- Developed internet/intranet applications utilizing BEA WebLogic, WebObjects, Java, Oracle, and related tools on Windows NT with deployment on Unix systems.
- Rehosted and extended UNIX scripts for WebObjects websites, featuring dynamic application configuration, process monitoring, and administrator alerting.
- Evaluated and customized requirements and configuration management tools to align with development processes.

Lockheed Martin

Specialist Senior | Fort Worth, TX | 5/1985 – 2/2000

- Developed simulation software to support F-16 Operational Flight Programs (OFP), initially in FORTRAN and later in C, enabling comprehensive in-flight testing environments.
- Served as Technical Lead for Modular Test Stations—shaping design, reviewing baseline submissions, and mentoring new employees.

- Rehosted simulation software to run on workstations with emulated flight computers, achieving estimated annual cost savings of \$20M by leveraging existing avionic models and tools.
- Redesigned and implemented a device-independent cockpit display avionic model, featuring textual descriptions of display pages for versatile deployment across varied hardware.
- Created scripts to convert configuration change documents into linked HTML resources, streamlining documentation and system updates.
- Rewrote threat target models and interfaces to support a fivefold increase in targets while enhancing execution efficiency.
- Collaborated on rehosting simulation software for a proprietary multiprocessor environment using the Multi Bus II backplane, including driver development and integration of avionic models.

PROFESSIONAL DEVELOPMENT

- AWS Certified Solutions Architect – Associate
- Certified Associate Python Programmer (PCAP) - Python Institute
- Generative AI for Software Development Specialization – Coursera, 2024
- DeepLearning.AI Data Engineering Professional Certificate – Coursera, 2024

PATENTS

- US Patent 8150664: Container-based architecture for simulation of entities in time domain.

EDUCATION

Mississippi State University, Starkville, MS

Bachelor of Science in Computer Engineering, 1981 – 1985

- Graduated Magna Cum Laude, University Honors Student

PROFESSIONAL REFERENCES

- Keith Holt | Former Colleague at Lockheed, Tensor, Collinear Systems, and ZedaSoft
- David Brynell | Former Colleague at Lockheed