Last update: 07/2026

Amin Sehati

Novi, MI

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HV Energy Systems Function Owner | Functional Safety (ISO 26262) | Requirements & MBSE | Automotive V-Cycle

SUMMARY

Certified Systems Engineer (INCOSE CSEP) *and* ***TÜV SÜD Functional Safety Engineer*** *with* ***8 years*** *of automotive* ***mechatronics*** *experience across Germany and the U.S.,* ***currently a Feature/Function Owner for Energy Systems at Scout Motors*** *(HV power distribution, range estimation, driving statistics, battery conditioning), delivering critical system functions through the full V-cycle from concept to launch. Previously owned* ***system-level requirements, architecture, and safety concepts for HV battery systems and inverters****, including* ***system FMEA*** *and* ***DVP&R****. M.Sc. in Automotive Engineering (Dynamics & Control) with hands-on* ***embedded C/C++****,* ***MATLAB/Simulink*** *plant modeling, and* ***ASPICE/AUTOSAR*** *software architecture. Experienced as the cross-functional technical owner between R&D, EE, software, and validation teams.*

CORE COMPETENCIES

HV & Electrified Systems: HV Battery Systems, Inverters, **HV Safety**, Battery Safety Concepts, Technical Risk Management

Systems Engineering: System Requirements Definition & Management, System Architecture Modeling, **MBSE (SysML/UML)**, V-Cycle Concept-to-Launch, Interface & Integration Management, Function Ownership

Safety & Standards: ISO 26262, Automotive SPICE, AUTOSAR, CMMI

Design Validation: System-Level DFMEA, DV, PV, DVP&R, **EOL Test Specifications**, Test Case Definition, **MIL/SIL/HIL** (dSPACE ControlDesk, ConfigurationDesk, FlexRay Configuration)

Modeling & Analysis: MATLAB/Simulink Plant & Real-Time Simulation, Vehicle Dynamics, First-Principles Multi-Domain Modeling, Data Analysis (Python)

Requirements & MBSE Tools: IBM DOORS NG, JAMA, Codebeamer, Polarion, Enterprise Architect, **Cameo Systems Modeler**, IBM Rational Rhapsody, PTC Integrity, Jira (**Agile sprint planning**)

WORK EXPERIENCE

Scout Motors Inc.
Novi, MI (Hybrid)

Feature/Function Owner · Energy Systems (Contractor)
Nov.–Dec. 2025; Mar. 2026 – Present

- **Function owner for HV Power Distribution, Range Estimation, Driving Statistics, and Battery Conditioning**, owning end-to-end delivery of these features and functions aligned with program milestones and supporting Feature Partners to bring them into production.
- Collaborate across stakeholders through the **full system "V" development lifecycle, from concept through launch**; define and manage **functional and non-functional requirements**, including validation and signoffs.
- Author and maintain component/system designs, **functional and EOL test specifications**, detailed test methods, and **system-level DFMEA, DV, and PV** for complex mechatronic systems.
- Apply **model-based design (MBD)**, **MBSE** tools, and **MIL/SIL/HIL simulation** for analytical development across software controls, EE/electronics, and hardware.
- Champion **first-principles design** and systematic problem-solving; lead and support **Agile ceremonies** (sprint planning, daily standups).
- Establish and maintain best practices for design standards, test procedures, and technical specifications.

Motion Grazer AI
Remote

IoT Machine Learning Engineer (Part-time)
Sep. 2025 – Mar. 2026

- Architected and maintained scalable **AWS** cloud and **IoT edge computing** infrastructure; designed and tested **data-driven ML solutions** in Python.
- Led development of the proprietary "SIMKit" software stack and its deployment across a fleet of **Linux-based embedded edge devices** (**NVIDIA Jetson**); instrumentation, **hardware troubleshooting**, automated testing, **Git**, and technical documentation.

FEV North America Inc. Auburn Hills, MI

Sr. Systems Engineer Apr. 2023 – Jul. 2025

- **Requirements engineering and management for HV Battery Systems and Inverters**, defining and maintaining functional and non-functional system, hardware, and software requirements.
- **Battery safety concept** documentation and **HV safety** analysis in line with **ISO 26262**.
- **System architecture modeling** and documentation; acted as technical interface across R&D, EE, software, and validation teams.
- **System FMEA** and **DVP&R** development for complex mechatronic systems.
- **Technical risk management** across the development lifecycle.
- Simulation and analysis using **MATLAB/Simulink**; toolchain development using VBA (Excel).

FEV North America Inc. – Systems Engineer *Nov. 2022 – Apr. 2023*

- Coached clients on **Model-based Systems Engineering (SysML)** and defined **systems engineering processes** and methodologies.
- **Requirements elicitation** and **test case definition** at system level.

FEV North America Inc. – ADAS Software Engineer *Apr. 2022 – Nov. 2022*

- **ADAS/AD systems engineering**; developed and maintained **embedded C/C++** software.
- **Integration of electronic control units** into vehicle applications; test data collection.
- Designed and troubleshot **vehicle electrical systems** and components.

FEV Europe GmbH Aachen, Germany

Project Engineer May 2018 – Mar. 2022

- **Requirements engineering and management using IBM DOORS NG** for automotive control systems.
- **Model-based Systems Engineering** using UML/SysML in Enterprise Architect.
- Software architecture design compliant to **Automotive SPICE** and **AUTOSAR**.
- **Plant modeling for real-time simulation systems** (HiL) using **MATLAB/Simulink**.
- Software process development and documentation; toolchain development for auto-generating AUTOSAR source files from architecture models.

Flanders Make Lommel, Belgium

Intern Aug. 2016 – Dec. 2016

- **Modeling and system identification of urban bus dynamics**; developed a 5-DOF vehicle model in MATLAB/Simulink.
- Performed **vehicle road tests** to identify model parameters; data analysis and visualization.

EDUCATION

Eindhoven University of Technology Eindhoven, The Netherlands

Master of Science in Automotive Engineering*; Specialization in Dynamics and Control* Sep. 2015 – Mar. 2018

- **Thesis**: Traffic Density Estimator from On-board Vehicle Radar Sensors (MATLAB/Simulink).
- **Relevant Coursework**: **Model-based Systems Engineering**, **Vehicle Dynamics**, Real-time Software System Engineering.

Trine University Allen Park, MI

Master of Science in Information Studies Aug. 2025 – Present (est. Dec. 2027)

- **Courses**: Systems Engineering Analysis, Project Management, Cybersecurity, Advanced Database, Network Management, Data Science & Big Data, Cloud Computing, Statistics & Quantitative Methods.

Eindhoven University of Technology Eindhoven, The Netherlands

Certificate in Technology Entrepreneurship and Management (MSc) Feb. 2017 – Jan. 2018

- **Relevant Coursework**: Management of Product Development, Process and Project Management, Financial and Operations Management.

Sharif University of Technology Tehran, Iran

Bachelor of Science in Aerospace Engineering Sep. 2011 – Jul. 2015

- **Relevant Coursework**: Aerodynamics, Computer-Aided Design, Thermodynamics, **Vibrations**, and **Dynamics**.

PATENTS

- "*Driver-assistance system for evaluating driver behavior via a smartphone connected to a vehicle control unit*"; Sole inventor; **U.S. Patent granted**; Appl. No. 18/368,729 (filed Sep. 2023). Granted Feb. 2026

AWARDS

- **FEV 2023 Innovation Award, 1st Place**, FEV North America; awarded for the Cellphone ADAS Application (basis of the U.S. patent above). Jul. 2023

CERTIFICATES

- **Certified Systems Engineering Professional (CSEP)**, INCOSE, Cred. ID 78732693. Jul. 2023
- **Functional Safety Engineer**, TÜV SÜD, Cred. ID M10902-24M119827. Dec. 2024
- **Certified Associate in Project Management (CAPM)**, Project Management Institute. Jan. 2020
- **Seven AWS Certifications**: **Machine Learning Engineer**, Solutions Architect, Developer, SysOps, Data Engineer (Associate); AI & Cloud Practitioner. 2023–2026

HIGHLIGHTED PERSONAL PROJECTS

pdf_Parser | *Requirements Extraction Tooling*

- Built a tool that converts specification PDFs into structured, schema-validated **SRS-style requirements** (JSON) using an LLM pipeline with chunking, defensive parsing/repair, and validation, to accelerate **requirements capture** from noisy supplier documents. Stack: Python, Streamlit, Docling, LangChain, Pydantic.

fcm | *Causal Modeling & Simulation*

- Created an end-to-end system that extracts causal "increases/decreases" relationships from technical documents, persists them in a graph database, and simulates them as an interactive **Fuzzy Cognitive Map** for **risk and system-behavior analysis**. Stack: Python, LangChain, Neo4j, Plotly.

PUBLICATIONS

- Berijanian, M.; Singh, K.; Sehati, A. (2026): *"Comparative Analysis of AI Agent Architectures for Entity Relationship Classification"*; In Proceedings of the 18th **International Conference on Agents and Artificial Intelligence (ICAART)**, Volume 1, pages 193–200.

VOLUNTEER

- **Co-host**, **System Modeling** workshop, Apple Manufacturing Academy (with Dr. S. Gray, MSU). 2026
- **Cohort Moderator**, **INCOSE** Systems Engineering Study Group (INCOSE Michigan Chapter). 2023

LANGUAGES

English : Full Professional Proficiency | **German** : Limited Working Proficiency (telc B1) | **Farsi** : Native

ADDITIONAL TOOLS

Programming & Modeling: MATLAB®/Simulink®, C, C++, Python, SQL, VBScript, Java, R

Test & CAD: TestLink, Postman, AutoCAD, SolidWorks, Solid Edge, Fluent, GasTurb

Data & Cloud: AWS, Databricks, Apache Spark, Tableau, PostgreSQL, Neo4j

Management & Documentation: Jira, Microsoft Project, Confluence, Git, SVN, LaTeX, Microsoft Office