Vinay Kumar Pandey, PhD

Product Owner | HIL/SIL Platforms | ADAS Validation & Automation

📍 Böblingen, Germany | 📞 +49 155 10697042 | 📧 vinay.pandeyiitg@gmail.com

🔗 LinkedIn: linkedin.com/in/pandeyge | 🔗 Xing: xing.com/profile/DrVinay_Pandey

Professional Summary

Technical Product Leader with 10+ years of experience across control engineering, model-based development, simulation, vehicle dynamics, ADAS validation, and embedded system testing. Expert in HIL/SIL platform development and test automation frameworks, with a proven record of aligning digital validation strategy to business goals. Led global teams and delivered scalable cloud-based test platforms in collaboration with NVIDIA, Valeo, DSPACE, and AWS. A passionate technophile and early adopter of AI in engineering workflows, I am actively exploring the integration of generative AI to accelerate ADAS validation. Adept at stakeholder management, agile execution, and building cross-functional teams that drive efficiency and innovation.

Key Skills & Competencies

⚙️ **Technical**

🖥️ Programming & Scripting: Python, yaml, bash, Matlab scripting, C, shell, CAPL, Linux, VSCode

🧠 Simulation Tools: Drivesim, Drivedebugger, Matlab, Simulink, CarSim, auto code generation using Target Link (Matlab)

🧱 Hardware / Embedded Systems: Dspace, Controldesk, Vector tools, ADTF, X2E, CANoe, DTS9

☁️ Cloud & Orchestration: AWS, GCP, Kubernetes, docker, containerization

📁 Version Control & DevOps: Gitlab, Artifactory, Gitlab-CI, Jenkins

🧱 ECU handling: Architecture, Flashing, variant coding, Trace32-Lauterbach, CAN, Flexray, Ethernet, UDS

🧪 Systems Engineering: Control systems, Vehicle dynamics, Model based development

🚗 Testing: HIL & SIL testing of ADAS functions, V-model, Software development life cycle

🔧 **Project management**

📋 Agile / Scrum: Agile execution, Product backlog management, Sprint planning

👤 People & Stakeholder Management: Stakeholder communication, Project roadmaps

📋 Documentation: Confluence, JIRA, Starc, Doors/DNG, Grafana, PowerBI

💼 Project Execution: Budgeting, timeline tracking, resource planning

🚀 Digital accelerator: Technophile, prompt engineering, vibe coding, codex, deep research etc.

📚 Certifications

ISTQB Foundation level | Professional Scrum Master | ISO 26262 | AI A-Z (Udemy)

Python Foundation Nanodegree (Udacity) | AWS Containerized Applications (Coursera)

Technical Program Management (Udemy) | MB F2 Driving License

ISO9001 exposure (audit participation) | ChatGPT Prompt engineering for developers

Professional Experience

Mercedes-Benz AG, Sindelfingen, Germany

Product Owner, HIL/SIL Automation & Orchestration, Jan 2023 – Present

- Architected and led digital platforms automation for global ADAS validation, enabling large-scale testing across Germany, USA, China, and India

- Drove 'Shift-left' adoption by developing early digital validation capabilities, reducing issue discovery time and improving test cycle efficiency

- Collaborated with NVIDIA, DSPACE, Valeo, and AWS on platform design, ECU bring-up, and scalable cloud orchestration

- Acted as Scrum Product Owner—managed backlog, sprint planning, and value delivery while resolving cross-team conflicts across global engineering hubs

- Led cross-functional teams of Python developers, DevOps, cloud engineers and testers

- Contributed hands-on in ECU debugging, automation scripting, and platform stabilization

Mercedes-Benz R&D India (MBRDI), Bengaluru, India

Principal Engineer – HIL and SIL Platform Development, Oct 2021 – Dec 2022

- Championed the global vision for ADAS digital validation, presenting the strategy to executive leadership and securing buy-in from global VPs

- Architected and scaled next-generation SIL/HIL platforms from the ground up aligning with program milestones and delivery roadmaps

- Built and scaled a high-performing diverse global engineering team (20+ members), driving ADAS testing through cloud-based orchestration frameworks.

- Directed cross-functional program execution across international locations, ensuring alignment with timelines, budgets, and resource allocations

- Mentored technical leads to define responsibilities, structure delivery workstreams, and execute the digital validation roadmap in sync with organizational objectives.

Senior Technical Lead – HIL/SIL Development & Testing, Apr 2019 – Sep 2021

- Spearheaded HIL/SIL platform development and CI test automation to scale ADAS validation across software releases

- Owned and managed all HIL setups of the department and resolved ECU issues, minimizing downtime and speeding up root-cause analysis

- Led a 15-member ADAS test team, boosting test coverage and early defect detection.

- Presented HIL/SIL test reports to global VP-level leaders, enabling informed go/no-go decisions for ADAS release

- Successfully led ISO 9001 audit (TÜV SÜD) to successful completion, ensuring compliance and improving process quality

Simulation Engineer – Vehicle Modeling & Simulation, Feb 2016 – Sep 2018

- Applied model-based development using first principles to design scalable vehicle and ECU models for ADAS simulation

- Built vehicle dynamics Simulink models to support MIL/SIL/HIL testing, significantly enhancing ADAS simulation reliability and coverage

- Integrated simulation platforms and automated validation tasks using MATLAB and Python, streamlining ADAS testing workflows

Education

PhD, Applied Control Engineering (EEE) – IIT Guwahati, India (2018)

Thesis: Adaptive Controller Design for Nonlinear Uncertain Systems Using Multiple Model based Two Level Adaptation Technique

Master of Engineering, Control Engineering (EEE) – BIT Mesra, India (2010)

Thesis: Reliability Prediction for IGBT based Inverters under different Switching Patterns

Bachelor of Technology, Electronics & Telecom – Dr. A.P.J. Abdul Kalam University, India (2008)

Thesis: Smart Antenna Control through C++

Awards & Recognition

- 🏆 Innovation Award – In-house self-driving robot golf cart (2021)

- ⭐ Bronze Star (2x) – Excellence in Agility and Co-Creation for ADAS initiatives

- 🎙 Speaker – AV'21 IQPC Conference on Autonomous Vehicles

- 🎖 Top 10% performer – Recognition & bonus program (2021)

- 👨‍⚕️ Reviewer – IEEE, Elsevier, Springer Journals

Extra curriculars

- 👨‍⚕️ Gave lecture on 'Adaptive Control System with Matlab Simulations' at ADMAT'15 organised by IEEE SB, IIT Guwahati, India.

- 👨‍⚕️ Volunteer in 'Research Scholar's Congress-2015' organized by RSF, IIT Guwahati, India.

- 👥 Donated blood annually to the Red Cross Society at IIT Guwahati, India.

- 👥 President of Hostel Management Committee, Barak Hostel, IIT Guwahati, India.

Additional Information

Date & place of birth: 1 July 1988 & Basti, India

Languages: English (Fluent), German (A1), Hindi (Native)

Driving License: German Klasse B

Notice Period: 3 Months

Research Publications: https://scholar.google.co.in/citations?user=_sHHfoQAAAAJ&hl=en

References

- Dr Philipp Nitzsche, Executive manager, System Integration, MB AG,
Mobile: +49 176 30933935, E-mail: philipp.nitzsche@mercedes-benz.com

- Mr. Vijay Chavan, Director Autonomous Driving, MBRDNA, USA
Mobile: +1 669 4546779, E-mail: vijay.chavan@mercedes-benz.com