AMOL SALUNKE

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EDUCATION

BITS Pilani – M.S. in Software Systems – 83.1%
2010 – 2012
College of Engineering Pune (COEP) – B.Tech. in Information Technology –77.3%
2005 – 2008

PROFESSIONAL SUMMARY

Senior Software Engineer with **17+ years of experience** in **AI/ML, Generative AI, PLM, and CAD systems**. Skilled in applying **RAG, LangChain, LangGraph, and Agentic AI** to deliver intelligent, enterprise-grade solutions. Proficient in **Python, C++, Java, Angular, and SQL**, with a strong track record of building AI-powered systems that improve quality and efficiency. Recognized as a **strategic problem-solver and mentor**, combining deep technical expertise with **stakeholder collaboration, agile execution, and team leadership** to deliver scalable, high-impact solutions in complex engineering and manufacturing environments.

SKILLS SUMMARY

- **Programming:** Python, C++11/14/17/20/23, C#, Java, SQL, Perl
- **AI/ML & Generative AI:** LLMs, LangChain, LangGraph, AWS Bedrock, RAG, Semantic Search, Prompt Engineering, Deep Learning
- **Web & UI:** Angular 2+, TypeScript, HTML5, CSS
- **CAD/PLM:** Teamcenter (tc13, tc14, tc2312, tc2406, tc2412, tc2506, tc2512), Active Workspace (aw6.1, aw6.2, aw6.3), NX Integration, BMIDE, ITK, SOA
- **Databases:** SQL Server, Oracle, NoSQL
- **Tools & Design:** GitHub, Visual Studio, UML, StarUML, Visio
- **Soft Skills:** Solution Architecture, Agile Delivery, Team Leadership, Business Analysis, Stakeholder Collaboration

WORK EXPERIENCE

Software Engineer Senior | Siemens Digital Industries Software Pvt. Ltd.
May 2018 – Present (7+ years)
Environment: PLM, CAD, NX, LLMs, LangChain, LangGraph, AWS Bedrock, RAG, Semantic Search, Prompt Engineering, Deep Learning, C++11/14/17/20/23, Teamcenter (tc13, tc14, tc2312, tc2406, tc2412, tc2506, tc2512), Active Workspace, BMIDE, ITK, SOA, HTML5, React 17/18, TypeScript, CSS, SQL/Oracle Server, PLM-Vis 3D Viewer, Microsoft Visual Studio, Windows, Linux | Team size: 10

- **AI-Driven Agentic Inspection Planning System**
  - Developed an **AI-powered intelligent inspection planning solution** leveraging **Agentic AI, LangChain, Retrieval-Augmented Generation (RAG), and vector databases**. The system employed autonomous AI agents to predict early defects, optimize inspection strategies, and reduce manual decision-making, resulting in faster, more accurate, and cost-efficient inspection planning.

- **AI-Powered Quality Planning Assistant**
  - Designed and implemented an **AI-driven assistant** leveraging **Agentic AI, LangGraph, Retrieval-Augmented Generation (RAG), and vector databases** to automate the creation of **Control Plans** and

optimize **inspection planning**. The system enabled context-based plan generation, reducing manual effort, ensuring process consistency, and accelerating quality documentation.

- **AI-Powered Root Cause Analysis Automation**
  - Developed an **AI agent–driven solution** to automate root cause analysis using the **5 Whys problem-solving methodology**. Leveraged **LangChain, LangGraph, and RAG** over historical system and operational data to enable intelligent reasoning, context-aware questioning, and accurate identification of underlying issues.

- **Control Plan & Inspection Plan (CP&IP) with NX Integration**
  - Developed the **Control Plan and Inspection Plan (CP&IP) module in Teamcenter**, enabling comprehensive inspection planning. This solution was integrated with **Failure Mode and Effects Analysis (FMEA)** to prevent production defects early in product manufacturing, significantly reducing quality costs. The control plan was implemented across the production lifecycle, serving as the foundation for creating inspection plans and inspection operations in downstream manufacturing processes.
  - **Control Plan and Inspection Plan (CP&IP) module integrated with NX CAD application** for seamless inspection planning through digital thread.
  - **Integrated a third-party BCT viewer with NX** in Active Workspace to import PMIs from 2D/3D parts, eliminating manual data transfer, reducing errors, and accelerating design-to-manufacturing workflows.
  - **Developed a generic framework** to generate Control Plan structures directly from FMEA, streamlining inspection planning, improving standardization, and reducing manual effort.
  - Applied AI/ML (LangChain, RAG, Vector Databases) for early defect prediction and intelligent inspection planning.
  - **Actively contributed to data model design and implementation,** ensuring scalability, data integrity, and alignment with business requirements.
  - **Mentored and coached team members**, driving adoption of best practices in C++, PLM, and Agile execution, which improved delivery predictability and team efficiency.

- **Failure Modes and Effects Analysis (FMEA)**
  - **Developed Failure Modes and Effects Analysis (FMEA) module** within Teamcenter PLM, enabling proactive risk identification and mitigation across manufacturing and engineering processes.
  - **Collaborated with business stakeholders and QA teams** to define requirements, conduct design reviews, and align solutions with quality standards.
  - **Developed a generic framework** to generate Variant FMEA structures from Master FMEA, enabling knowledge reuse, ensuring consistency across product lines, and reducing analysis effort

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Technical Lead | HCL Technologies (Geometric Ltd.)
Apr 2016 – May 2018 (2 years 2 month)
Environment: PLM, QMS, HTML5, Angular2, C#, TypeScript, CSS, SQL/Oracle, C++11, COM, XML, PLM-Vis 3D Viewer, Team Developer (SQL Window), Microsoft Visual Studio, Windows | Team size: 5–7

- **Inspection Plan Management (IPM)**
  - **Developed Inspection Plan Management (IPM) module**, creating a C++/COM wrapper for PLM-Vis 3D Viewer and extending SPC, IGC, and OGC modules to enhance inspection planning efficiency and product quality assurance.
  - **Collaborated with cross-functional stakeholders** to deliver scalable, user-friendly QMS solutions, improving traceability, compliance, and adoption across global manufacturing clients.

- **Advanced Product Quality Planning (APQP)**
    - **Led development of Advanced Product Quality Planning (APQP) modules** including Process-Flow Chart, Control Plan, Checklist, and Master Data, streamlining product development processes across R&D, design, and manufacturing.
    - **Mentored junior engineers** by allocating tasks, performing code reviews (complexity, reusability, maintainability, testing), and tracking progress.

Senior Software Engineer | Delcam Consulting & Technology Services Pvt. Ltd.
Jun 2008 – Mar 2016 (7 years 9 months)
Environment: CAD, C++11, MFC, Parasolid 3D Geometric Modeling Kernel, Microsoft Visual Studio, Windows| Team size: 7–10

- **ShoeMaker (CAD Domain)**
    - **Designed and developed multiple 3D footwear design tools** (Grouping, Pipe, Lacing, Sole, Image Tiling & Merging, Attribute Transfer) from scratch within Delcam ShoeMaker, enabling faster, more flexible shoe design and improving product usability.
    - **Built advanced CAD features** such as 3D stencil wrapping, style line sketching, material texture mapping, and automated lacing, enhancing design accuracy.
    - **Led requirements analysis, SRS preparation, estimation, and GUI design**, ensuring features aligned with customer expectations.
    - **Collaborated on end-to-end development lifecycle** (design, implementation, unit testing, release), ensuring projects were delivered on time and met performance and maintainability standards.

CERTIFICATES

- AWS Certified Cloud Practitioner
- AWS Certified AI Practitioner
- Mastering Gen AI, Large Language Models & Agents
- Python, C#
- SAFe for Teams (4.5), Scaled Agile

RECOGNITIONS

- Outstanding Contribution to Teamcenter Quality – Siemens, 2021
- GEO CHAMP Award – Geometric, 2016
- Quality Stalwart of the Year – Delcam, 2015