

# Nandhish Thathanur Rajappa

Software Developer Engineer | C++ Specialist

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## PROFILE SUMMARY

Highly skilled C++ software engineer with 5 years of proven experience in high-performance application development. Expertise in software architecture, OOP, design patterns, debugging, and Agile methodologies, backed by a solid background in industrial automation and embedded systems.

## SKILLS

**Programming Languages:** C, C++, Python, SQL, QML, Java

**AI & ML:** Natural Language Processing (NLP), Large Language Models (LLMs), Generative AI, Prompt Engineering, PyTorch, Langchain, RAG

**Software Development:** Agile-Scrum, Git, CI/CD, UML, Object-Oriented Programming (OOP), GUI, STL, GDB, Bash, TDD, Design Patterns

**Other:** Qt, CMake, Visual Studio, Linux, Windows, FPGA, Docker

**Languages:** English (C1), German(A2)

## PROFESSIONAL EXPERIENCE

**Otto-von-Guericke-Universität,**

04/2024 – 07/2025 | Magdeburg, Germany

*Wissenschaftliche Hilfskraft*

- Created and optimized custom kernels for **SQL query acceleration** on the **Xilinx Vitis AI Engines**.
- Rewrote and optimized **XDMA** driver code in **C++** to enhance data transfer efficiency.
- Developed an **AxiDMA** driver in **C++** for **Linux**, enabling seamless **FPGA** integration.

**Siemens, Software Developer Engineer**

11/2021 – 09/2023 | Bengaluru, India

- Developed core components of the **screen editor** in **TIA Portal** using **C++**, **Qt**, and **CMake**.
- Implemented **backend logic** for dynamic object creation and data flow management.
- Participated in **feature-level** design discussions and created detailed **UML** architecture diagrams.
- Led development and supported junior team members to maintain project momentum and **quality**.
- Resolved **critical software defects**, improving system stability and performance.
- Ensured **seamless integration** of new modules within complex industrial automation systems.
- Maintained** and managed the **codebase** for a key module, enforcing best practices.
- Conducted **rigorous code reviews** to uphold **coding standards** and reduce defects.

**L&T Technology Services, Software Engineer**

06/2019 – 10/2021 | Mysuru, India

- Developed features for a **patient monitoring application** (ECG, SpO2, BP) using **C++** and **QML**.
- Wrote **unit tests** using **Google Test**, contributing to improved code coverage and reduced defects.
- Participated in **code reviews**, gaining exposure to best practices and ensuring code consistency.
- Investigated and resolved **software bugs**, supporting overall product stability during development.

## EDUCATION

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**Otto-von-Guericke-Universität,**

10/2023 – Present | Magdeburg, Germany

*Master of Science, Digital Engineering | GPA: 1.7*

**Vellore Institute of Technology,** *Bachelor of Technology,*

05/2015 – 04/2019 | Chennai, India

*Electronics and Communication Engineering | GPA: 2.0*

## PROJECTS

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**Brain Tumor Segmentation,** *Pytorch, CNN, Python, Vitis AI*

Performed 3D image segmentation of MRI scans using a 3D U-Net architecture to detect brain tumor abnormalities.

**NVM-Optimized B-epsilon-tree,** *C++*

Enhanced write performance in non-volatile memory storage through optimization of B-epsilon-tree data structures.

**Disease Prediction Chatbot,** *Python, LLM, RAG, ChromaDB*

Developed a medical chatbot utilizing BioMistral-7B and Retrieval-Augmented Generation (RAG) for accurate disease diagnostics.

**Flat Earth Believer Bot,** *Python, LLM, Langchain*

Built an NLP-driven chatbot incorporating advanced sentiment analysis to engage users.

**Three-Player Chess,** *Java, HTML, CSS*

Designed and implemented an interactive multiplayer chess game with CI/CD pipelines.