CURRICULUM VITAE

Name	**Mallikarjun Tirlapur**
Date of birth	**22.04.1988**
Telephone	**+919740003234**
E-mail	tirlapurmallikarjun@gmail.com
Website	https://mallikarjuntirlapur.github.io/
Address	**#28, 1st B Main Road, Mohan Kumar Nagar, Yeshwanthpur, 560022, Bengaluru, India**

OBJECTIVE

A Challenging position that allows me to continuously engage with and adapt to new technologies. I am committed to leveraging my skills and expertise to drive innovation and contribute to the continued success of the organization.

WORK EXPERIENCE

Embedded Security Software Developer, **01.02.2016 –**
Staff Embedded Software Developer,
Senior Staff Embedded Software Developer
Infineon Technologies AG, Augsburg / Bengaluru.

- Expert in embedded secure software development, developing Java Card Operating System in a scrum team.
- Designed and developed a high-performance and secure Java Card Virtual Machine in native embedded C.
- Created threat models, secure coding patterns, and implemented countermeasures against potential attacks.
- Developed well documented **I2C** low-level drivers and JC API native interfaces.
- Implemented Cryptographic **SHA** algorithm native interfaces, enhancing the platform's cryptographic capabilities.
- Architected and implemented **memory management algorithms** for handling objects in memory.
- Conceptualized and successfully led a team of 4 in the development of a Java Card binary linker tool.
- Implemented over **50** Java Card Virtual Machine bytecodes, enhancing the platform's functionality and security.
- Defined memory layout for the OS and architected memory access permissions by programming MPU.
- Automated **MPU configurations**, reducing developer effort by **50%** and improving overall efficiency.
- Configured **ARM TrustZone**, enabling secure and non-secure worlds for OS and sandbox apps, respectively.
- Introduced and implemented **10+** innovative ideas, reducing code footprint by **~40 KB** and substantially improving system performance.
- Developed production tools in collaboration with the production team by translating high-level architecture into component-level design.
- Led team development by conducting trainings, mentoring freshers, hiring and guiding interns, and presenting work to stakeholders for alignment and visibility.
- Developed comprehensive white box and black box tests, enhancing software quality assurance and reliability.
- Created automation tools using Python scripting, streamlining daily software CI processes.
- Developed java card applets, unit tests and fixed bugs.
- **Patent Filed** (Pending):
  1. "A method of improving Java card VM performance of the java card product." **(**increased by **150%)**
  2. "Alias for package-info in import component of CAP file." **(90%** package-info footprint saving**)**

Embedded Developer **01.11.2015 – 31-01-2016**
COBI-Connected Biking for everyone, Frankfurt.

- Developed tasks on FreeRTOS, programming PWM for driving RGB channels of LED light of the bike.
- Procured knowledge in CAN bus e-bike driver development.

Master Thesis **01.04.2015 – 30.09.2015**
KUKA Roboter GmbH, **R&D Technology Development, Augsburg.**
Research Topic: A framework for non-expert robot programming facilitated by a self-localizing smart device.
Objective: A smart device (Project Tango Smartphone) equipped with high-end sensing capabilities facilitates the programming of industrial robots in the field of logistic tasks such as pick-and-place and packaging.

- Developed an android app to publish on touch 2D pixel coordinates.
- Developed algorithms in C++ on ROS platform to locate objects.
- Developed a base station program for processing images using computer vision state-of-the-art algorithm APIs.

Internship **01.09.2014 – 28.02.2015**

KUKA Roboter GmbH, **R&D Technology Development, Augsburg.**

Research Project: Developing pick-and-place robotic applications using Project Tango Smartphone on ROS

- Developed an android app from scratch to parse super frames for depth & RGB images and publish live images into ROS network over wireless network (Wi-Fi).
- Developed 2D to 3D transformation algorithm.

Application Engineer **05.07.2010 – 19.08.2013**

Microchip Technology Private Ltd (INDIA), **Bangalore.**

- Post-silicon validation of PIC microcontroller peripherals by writing various tests in C.
- Developed magnetic stripe reader prototype for customers.
- Answering internal and external customer queries.

EDUCATION

Hochschule Darmstadt, Germany **Sep 2013 – Feb 2016**	Master's in electrical engineering System Design (C++ & UML), Technical Project Management, Design and Test of Microelectronic Systems, Complex Digital Architectures, Advanced Feedback Control, Advanced Automation, and Advanced Robotics.
The National Institute Of Engineering, Mysore **Sep 2006 – June 2010**	Bachelor of Engineering in Electronics and Communications Engineering Basic and advanced Mathematics, C, C++, Logic Design, Image processing, Electronic Circuits and Design, Digital Signal Processing, Analog and Digital Communication, Microcontrollers, Microprocessors. Embedded Systems

SKILLS

General: Leadership, Requirement Analysis, Design, Architecture, Secure Software Development, Debugging, Testing
Operating Systems: Java Card OS, FreeRTOS, and Embedded Linux concepts.
Programming Languages: C, C++, Python, Java, C#, Assembly.
Microcontrollers & Processors: ARM Cortex-M/A, PIC microcontrollers.
Microcontroller fundamentals: MPU, MMU, Timers, PWM, DMA, WDT, ADC, DAC.
Communication Buses: SPI, I2C, RS-232, and CAN.
IDEs: Keil uVision, Eclipse, VS Code, Visual Studio, Android Studio, MPLAB 8, and MPLAB X.
Software tools: ARM Toolchain, JavaCard Toolchain, MS Office Tools, Git, Doxygen, BitBucket, Jenkins, LabVIEW.
Lab Equipments: Agilent &Tektronix Oscilloscope, Function generator, Digital multi-meters, DC Power supply, Thermonics, Soldering.
Languages: English & Hindi (native proficiency), German (B1), and Kannada (mother tongue)**.**

VOLUNTEERING

- Member of Toastmasters Club
- Teacher at eVidyaloka(not-for-profit organisation) Trust

PERSONAL TRAITS

- Quick learner, adaptable to new technologies.
- Self-motivated and proactive in driving projects and teams.
- Strong resource management skills with proven ability to deliver results.

HOBBIES

Yoga, Table tennis, Biking and Hiking.