N. VINITH KUMAR

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Summary:

Experienced professional with **18.5 years** of hands-on domain and technology experience in **Embedded systems, Project Management, Video algorithms and Audio processing**. Skilled in software architecture, design and implementation for video and audio components. Possessing a proven ability to lead project teams to successfully deliver agreed upon solutions of the highest quality, often in complex and challenging customer environments.

✓ **Currently looking for Technical/ Managerial roles where the work keeps me very challenging and interesting.**

Skillset Snapshot:

AI Expertise	
AI Automation Tools	Make.com, Airtable, VA-API
AI Software composing Tools	Replit, Co-Pilot, Relevance- AI, Bolt

Project Management Expertise	
Development Methodologies	Agile, Waterfall
Certifications	Google Project Management Specialization
Tracking tools	JIRA, Microsoft Project, Gantt Chart, Burndown Chart, Pie Chart
Version Control tools	IBM Rational clear case, WinCVS, SVN, GIT Gerrit, RQ-one

Technical Expertise	
Programming Languages	C, C++, Assembly (PACT Processor), OpenCL C, Python
Technologies	**Video**, **Computer vision** – OpenCV, OpenVx, Arm compute, FastCV, **Audio**, **Automotive, Camera pipelines**
Frameworks	ASPICE 4.0, OpenVx, GStreamer, DirectShow, AV Foundation, TI performance audio
Arm Architecture	Exception levels, MMU, cache management, and TrustZone fundamentals
ALSA	Concepts and Implementation
Bootloader / U-Boot	Boot stages, porting, environment variables, device tree handling
BSP / Drivers	Peripheral initialization, Hardware Abstraction Layer (HAL)
Linux Kernel & Device Tree	Kernel build process (Yocto)
DSPs	PACT XPP, TMS320C6678, Synopsys EV6x, TI c66x
Hardware Accelerators	AVX2 intrinsics, Samsung's MFC Media Engine, Microsoft's DXVA Engine, Intel Media SDK (IPP)
Codecs	**Video**: H.266, HEVC, VP9, MVC, H264, MPEG4, AVS, H263 **Audio**: Dolby THD, Dolby Digital Plus, DTS , **Image**: JPEG

IDEs	Microsoft Visual Studio, Code Composer Studio, Source Insight, Eclipse C/C++ IDE,
Compilers	GCC, XFNC PACT compiler, ARM, C66x
Debugging Tools	USB TypeC PD Analyzer, Microsoft Visual C++, Trace32, MATLAB, Real View, Developer Suite 2.2, Black duck static analysis tool, Klock works, Squish Coco, Can-oe, Code composer Studio, PACT XFNC Sim debugger, Vega Stream analyser, Elecard HEVC, H264 analyser, Audacity Audio Analyzer., Graphviz debugging tool
Platforms	AM437x, ARM9 TI c66x, PACT XPP simulator, Intel Haswell X-86, STM32 MCU
JTAG	Trace32 ICD, AXD debugger, Open OCD debugger
Connection interfaces	I2C, SPI, UART, USB-type C

Highlights:

- **Effectively led a cross-functional team of 35+ engineers**, ensuring timely project delivery and customer satisfaction to emphasize leadership and stakeholder management.
- **Mentored** and coordinated Customer boot block team **10+ Engineers in achieving Level 2.0 ASPICE** for System , Software requirements process group.
- Technically leading and Managing GoPro camera **India platform team of 10+ Engineers**, collaboration with stake holders across US, Bucharest, China.
- Managing and leading **proprietary camera development team of 6+ Engineers** and interacting with various stakeholders across the globe (India, US, France, Japan, etc)
- Managing and leading **Vision kernels optimization** team for the proprietary hardware.
- Leading, Design, planning and development of **Audio ASPs, Audio codecs** in TI framework for prospective customer (India, Korea)
- Design and Development of **Video Encoders and Decoders such as HEVC, VP9, MVC, H264, MPEG4 and AVS** on Samsung MFC Multimedia Engine (integrated in Samsung Exynos series) - India and Korea
- Design, Development and **Optimization of Embedded/DSP software** on various processors such as ARM9, Samsung Exynos, PACT XPP and on FPGA

Employment History:

Organization	Role	Period
Bosch Global Software technologies	Group Manager	Aug 2023 - Nov 2024
Capgemini Engineering	Program Manager	Apr 2022 - Aug 2023
Pathpartner Technology (KPIT)	Technical Manager	Jan 2015 - Apr 2022
Samsung R & D Institute	Technical Lead	Jul 2010 - Jan 2015
Tata Elxsi Limited	Senior Engineer	Jun 2006 - Jun 2010

Educational Qualification:

Institute	Degree	Percentage	Year completed
Amrita Vishwa Vidyapeetham, Coimbatore	B. Tech (EEE)	78.21	2006
Carmel Garden School, Coimbatore	12th (Plus2)	93.75	2002
Carmel Garden School, Coimbatore	10th (Matric)	87.6	2000

Awards Received:

- "**Team Excellence Award**" - **2021** for Dolby, DTS and Audio Post processing development on DA10x and DA8x AVR
- "**Motivator Award**" - **2020** for supporting in critical project tasks during Covid time
- "**Best QMS Complaint project award**" - **2018** for Qualcomm OpenVx project achieving milestones completed within organization threshold metrics
- "**Annual Excellence Award**" – **2017** for contributions to Synopsys project

Certifications and Licenses:

- "**Google Project Management Specialization**" – **2025** - https://www.coursera.org/account/accomplishments/specialization/583J1TZACUQK
- "**Generative AI for Business Leaders**" – **2025** - https://www.linkedin.com/learning/certificates/30affde32eaebd669b84c994b4650d8f81670e4ef5d764388f0b5d6d9f3b5b63?trk=share_certificate%20&lipi=urn%3Ali%3Apage%3Ad_flagship3_profile_view_base_certifications_details%3BCUL710RxQK2CPGexk7TfOg%3D%3D#generativeai%20
- **"ASPICE 4.0 – Automotive SPICE" – 2025** https://www.udemy.com/certificate/UC-06ac97c6-87f4-43bc-bee8-cf8e624f204c/

International Presentations:

- **"ARC processor summit presentation" - 2017** on Efficient OpenCV acceleration on next generation EV6x vision processor **– USA** https://www.synopsys.com/dw/ipdir.php?ds=arc-processor-summit-2017#target24
- **"IEEE paper presentation" - 2014** on Fast Intra mode detection based on block orientation in HEVC –**Taiwan** (https://ieeexplore.ieee.org/document/6845930)

Professional Experience Detail:

Group Manager, Bosch Global Software Technologies, Coimbatore (Aug 2023 – Nov 2024)

- Effectively led a cross-functional team of 35+ engineers, ensuring timely project delivery and stakeholder satisfaction.' to emphasize leadership and stakeholder management.
- Spearheaded the successful delivery of the Customer boot block (CB) module, aligning with client expectations and timelines.' to emphasize leadership and strategic alignment.
- Mentored and coordinated CB team (High performance compute team) 10+ Engineers in achieving Level 2.0 ASPICE for System, Software requirements and verification Process group.
- Escalation management addressing such that stake holder commitment and timelines are not missed.
- Proactively resolved team conflicts, fostering a collaborative and high-performance work environment.' to highlight conflict resolution skills.
- Handling time zone operating challenges (Germany, Vietnam, China, India).

Program Manager (Senior Manager II) , Capgemini Engineering, Bangalore (April'2022 – Aug 2023)

- Leading and Managing India GoPro platform development team
- Design, Development and review of GoPro platform features in HAL and MCU (STM32) side.
- Debugging and bug fixing of platform related camera issues, guiding engineers in debugging
- Discussing, requirement gathering and technical meeting with internal/external GoPro counter parts (USA, Bucharest and China Teams)
- Involvement in review of cross functional modules in the Camera
- Recruitment of engineers, leads for the GoPro camera and other new Upcoming project teams.

Technical Manager, Path Partner, Bangalore (Jan'2018 – April 2022)

- Leading camera development team and interacting with various stakeholders across the globe.
- Managing OpenVx kernel adaptation team for FastCv and Arm compute libraries (Qualcomm)
- Managing and leading Vision kernels optimization team for the proprietary hardware (Synopsys Ev6x).
- Managing team of Audio codecs (Dolby and DTS) plugins using Gstreamer for prospective customer (Qualcomm)
- Leading, Design, planning and development of Audio ASPs, Audio codecs in TI framework for prospective customer (Anam Electronics)

Senior Technical Lead, Path Partner, Bangalore (Jan'2015 – December 2017)

- H264 decoder optimization on AM437x platform (https://www.design-reuse.com/articles/40202/efficient-simd-and-algorithmic-optimization-techniques-for-h264-decoder-on-cortex-a9.html) . Lead the team.
- Guiding the team of engineers for the design of fast algorithms for reference HEVC encoder in x86 platform.
- Fast Algorithm Design and development (C coding) for Reference HEVC Encoder in x86 platform.
- Ramping up on Shannon HEVC encoder code base (C level coding) and the modules to get the overall hands on leading the project for the future.
- Projects involved in:
    - HEVC Reference encoder development in X'86 platform of multicores for International Demo.
    - Shannon HEVC encoder ramp up in TMSC6678 platform.

Technical Lead, Samsung R & D India, Bangalore (2012 – 2014)

- Lead the team of 4 engineers for the Research related activities happening in Video domain and came up with the paper on HEVC which is presented in IEEE conference in Taiwan (IS3C 2014).
- Lead the team of 3 engineers for the DXVA interface driver development for HEVC decoder.
- Design and development of HEVC encoder and decoder Firmware and enhancements for the Samsung MFC accelerator IP.
- Design and development of VP9 10-bit decoder for upcoming Samsung IP.
- Support and resolving critical customer issues from Qualcomm, Apple for H264, H263, MPEG4 codecs.
- Development of Firmware enhancements for MPEG4 and H263 encoder
- Projects involved in:
    - VP9 10-bit decoder development for upcoming Samsung IP
    - Optimization of firmware for HEVC decoder.
    - Microsoft DXVA compatible driver development for HEVC decoder in ARM 946, ARM 926 platform
    - HEVC 10-bit decoder development and support.
    - HEVC decoder and Firmware enhancements development and support.
    - MPEG4, H263 encoder firmware enhancements development and support.
    - H264 decoder firmware enhancements development and customer support.

Lead Engineer, Samsung R & D India, Bangalore (2010 – 2012)

- Design and development of AVS decoder Firmware and enhancements for the upcoming Samsung IP.
- Design and development of H263 decoder Firmware and enhancements in ARM 946/ ARM 926 platforms.
- Development of test case for automatic validation of Firmware enhancements.
- Development of H264 decoder Firmware and enhancements in Open Risc platform.
- Projects involved in:
    - AVS decoder Firmware and driver development for upcoming Samsung IP.
    - H264 and H263 decoder Firmware and driver development and customer support.

Senior Software Engineer, Tata Elxsi, Bangalore and Trivandrum (2008 – 2010)

- Test bench development (CAPL and XML scripts) for validation of Audio and Video telematics in Vehicle infotainment systems for Chrysler LLC, US.
- Development of Fast Algorithm for Motion estimation (C, C++) in Reference H264 encoder.
- Development of Fixed-point Rate control module (C, C++) in Reference H264 encoder.
- Projects involved in:
    - Audio and Video test bench development for Chrysler LLC, US
    - H264 reference encoder development.

Software Engineer, Tata Elxsi, Bangalore (2006 – 2008)

- H264 decoder porting in PACT XPP platform of 4 processors.
- Optimization of H264 decoder (C level and code level) in PACT XPP simulator.
- Software integration of XPP modules (IQT, MC and Deblocking Filter) given by client PACT Germany with H264 decoder ported in PACT XPP simulator.
- Assembly coding (PACT ASM) of time Intra prediction modes for H264 decoder for achieving performance of 20 FPS for 720P resolution in the PACT simulator.
- Projects involved in:
    - H264 decoder implementation in PACT XPP ported into 4 processors.