

Atanas Rusev

Senior Embedded Software Engineer

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Born: 4. Nov 1983
Marital Status: Single
Citizenship: Bulgarian
Driving License: Yes, cat. A, B

1. General Software Engineer Skills

Legend: (4) Expert; (3) Advanced experience; (2) Used, with middle knowledge; (1) Basic knowledge

System Design Experiences

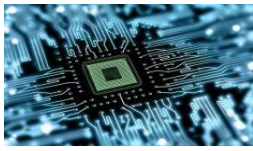
- Framework Design for RTOS Image DSP System (4)
- AUTOSAR 4 Autocode System Design for complete Data API Delivery system (to all Applications) with Versioning, Speed optimizations and Data Security / Sustainability Strategies (4)
- SIL, HIL and PIL testing (4)
- Unit Tests Design, Complete product functionality tests and API Tests (4)
- Design and Integration of Diagnostic Interfaces

Software design

- 11 years of experience with C for Embedded Systems – Expert (4)
- V-Modell (4), Assembler (2), C++ (3), AUTOSAR 4 (3), SPICE Process ISO 15504 (2), Python (2)
- CAPL for CANoe (2), CANoe Panel Designer (2), CAN (2), LIN (2), MOST (2)
- Experience with Multi-Application APIs for MOST connected Applications (3)
- 4 years of experience with MISRA rules and PRQA QAC (4)
- Knowledge and experience in development of State Machines / FSM (3)
- Long time experience in writing design, procedure and HowTo documents (4)
- Long time experience in writing, reviewing and working with Requirement and Customer Specifications (4)

Embedded Electronics

- Excellent understanding of electronics schematics and Hardware/Software Documentation (Bachelor and Master dipl. Eng. Of Electronics) (4)
- 10 Years of Experience with RTOS Application Development (4)
- Excellent knowledge for Low Level Drivers (7+ years experience) – worked with CMOS, USB, I2C, NVRAM, FEE, FDL, Graphics and Image DSP Embedded Drivers (4)
- Good Knowledge of ARM7 based MCUs, 32 bit and 16 bit Renesas MCUs (3)



Automation of Software Development

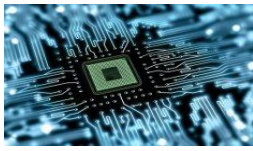
- Design of Automated ARXML API and Source Code Generation System (4)
- Design and Development of CMOS Driver Test Application for PIL and HIL on Target Testing through JTAG (4)
- Design of API Communications Library for connection between PC and QNX Target for complete Automated SIL test (4)

Tools and PC Applications

- Microsoft Office Professional (3)
- Windows 7 – 10 (4)
- 2+ Years working on Linux Fedora, Mint and Ubuntu (2)
- MAC Mini PC iOS – worked for half an year and developed Python / USB connection (2)
- Beyond Compare, Araxis, WinMerge, Diff and other merging tools (4)
- GIT, PTC Integrity, SmartSVN, Tortoise SVN, Microsoft Source Safe, Serena Dimensions, SBM Teamtrack (4)
- 7+ years working with Eclipse IDE (4)
- IAR Embedded Workbench, Greenhills MULTI, WinIdea, QtCreator, KEIL uVision, Code Composer Studio, Eclipse + Open OCD, gdb (4)

General Skills

- Development of RTOS Elements: real time Task Handling; Interrupts Handling and Priority; Design of uninterruptible critical processes; Task Development; Messaging; State machines Development. (4)
- 10 years working with Oscilloscopes, Multimeter, Bus Analyzers, Decoding of serial communication interfaces(4)
- 10 Years working with Real Time Debugging with 5 different Debuggers and 6 IDEs (4)
- 10 Years of Experience as Embedded SW Engineering (4)
- Task execution estimation and task distribution in team, work planning according to project needs (4)
- Excellent Time and Task management Abilities (4)
- Excellent communication skills based on 10 years of experience in international teams and projects (4)
- Team player with firm target for constant Self Development (4)



2. Project Experience

**02/2019 – 04/2019: Senior Automotive Software Engineer with C / Python
Freelancer for Veoneer GmbH, München (through Cyres Consulting GmbH,
München)**

Project Description:

Build System Development for ADAS Project

Tasks:

- Investigation of CMake vs self-written Makefiles vs Eclipse based Make system
- Written a manual for Eclipse and MinGW usage, setup, importing, debugging, etc.
- Investigation of LDRA Toolsuite installation, usage, setup of MISRA checks for projects, reading and interpretation of LDRA results, usage of the tools from console
- Written an over 100 pages manual for LDRA with all necessary instructions
- Found issues in LDRA, was the contact person with LDRA support and IT department for process establishment
- Writing Python scripts for calling batch commands, interpreting MinGW compilation results, executing LDRA jobs, writing scripts for Jenkins etc.

Tools:

- Eclipse, Makefiles, MinGW, CMake
- LDRA Toolsuite
- Python, Windows Batch Scripts
- Jenkins
- Beyond Compare

**10/2018 – 11/2018: Senior Embedded Software Engineer
Freelancer for a Bulgarian Ltd**

Project Description:

RnD for HW / SW Development and architecture for consumer electronics device

Tasks:

- Preparation of basic Requirement Specification
- Investigation of potential HW platforms for Linux based SW development. Comparison and investigation of CPU, RAM, HW interfaces, existing libraries, support, ports of Linux based OSes
- Verification of potential further transfer of the designed device to a custom company designed platform
- Development of basic SW architecture – planning of OS tasks, SW Components, Low Level Drivers and high level Applications
- Investigation of potential LCD Displays according to customer requirements with respect to price and characteristics and availability for prototyping
- Chosen Arch Linux for development

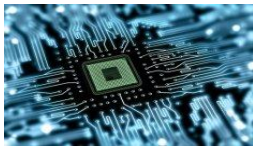
**04/2018 – 08/2018: Senior Automotive Software Engineer with C
Freelancer for Behr Hella Thermocontrol (BHTC Lippstadt) via Eeins GmbH
Stuttgart**

Project Description:

C based Autosar project for advanced Seat Heater functionality on advanced Climate Control ECU

Tasks:

- Requirements analysis and validation
- Design of advanced algorithm for learning user habits and controlling further the seat heating on a fully automated basis considering car, profile and environmental conditions



- Investigation of use case scenarios and contradictory conditions
- Design of data management including reset and optimization
- Investigation and design of correct usage of NVM and calibration parameters, design of C code based on mathematical equations, design of results validation
- Development of 3-level nested algorithm with state machines for full process control and execution, and control of all predefined and designed functions
- Investigation of necessary interfaces, communication and alignment with integrators and other engineers for complete component integration in the system
- Design of a complete logging functionality for full tracing of the algorithm execution throughout all internal functions and stages with additional log decoding tool
- Development of full internal requirements specification
- Development of complete design document
- Matched completely traceability between customer specification, internal SRS and final design documentation according to ASPICE.
- Design of basic test and validation procedures
- Conducted the complete end customer discussions for features, requirements and mathematical clarifications throughout the project

Tools:

- Eclipse, Greenhills Compiler, GIT (with GitKraken)
- Renesas E1 debugger
- CANoe,
- Autosar

**01/2018 – 02/2018: Senior Automotive Software Engineer with C
Freelancer for Valeo GmbH, Stuttgart, via Eeins GmbH Stuttgart**

Project Description:

C based Autosar project for advanced parking assistance system for Renault

Tasks:

- Ticket burn down
- Investigating internal and customer defect reports
- Debugging diagnostics related issues, investigating signals distribution and inter dependence, checking implementation against requirements
- Simulating parking scenarios
- Made detailed DEM and NVM driver check with investigation of write times, latencies and configuration. Made timing reports, checked redundant blocks writing and write triggers. Investigated in detail NVM state machines, found issues and proposed fixes that were accepted
- Investigating execution paths inside the SW, tracing signals and data transfer between state machines, tracing Autosar RTE signals
- Investigated sectors separation for different parking scenarios

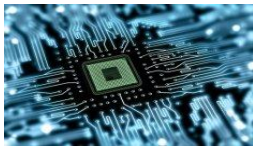
Tools:

- WinIdea, Greenhills Compiler
- IC5000 iSystems debugger
- Custom Simulation HW, CANoe, Eclipse
- DOORS, Enterprise Architect

**09/2017 – 12/2017: Senior Automotive Software Engineer with C
Freelancer for Valeo GmbH, Stuttgart, via Eeins GmbH Stuttgart**

Project Description:

C based Autosar project for advanced parking assistance system for Ford



Tasks:

- Ticket burn down before final release
- Investigating internal and customer defect reports
- Debugging diagnostics related issues – made full thorough investigation of diagnostic framework and activation, found significant discrepancies between SW setup and DaVinci Configurator generated code
- Simulating parking scenarios
- Investigating execution paths inside the SW, tracing signals and data transfer between state machines
- Checking calibration parameters map, implementation, setting and getting

Tools:

- WinIdea, Greenhills Compiler
- IC5000 iSystems debugger
- Custom Simulation HW, CANoe, Eclipse
- Diagnostic SW
- Autosar

**01/2016 – 04/2017: Senior Automotive Software Engineer with C++
Freelancer for Valeo GmbH, Stuttgart, via Eeins GmbH Stuttgart**

Project Description:

C++ based project for Road Laserscanner Device with development force in 4 locations and with approx. 200 developers

Tasks:

- Investigation of test environment, developing testing procedures and manuals for team of 15 freelancers
- Development of functional SIL tests in Qt based SW environment for unit and functional testing of complex components for geometrical calculations and objects build and detection
- Developed two custom data generators for coordinates and road objects simulation
- Developed several test frameworks for different components with custom data generation and templates specialization handling
- Requirements writing and review
- Writing of design and architecture documents
- Code refactoring
- Planning of tasks, managing team assignments, doing in advance work load and timing estimations
- Writing HowTo documents, procedures, training documents, performing training for newcomers
- Worked on 10 components (each with 5-30000 lines of complex template based 6-layerd class structure)

Tools:

- QtCreator, Eclipse
- DOORS, Serena Dimensions
- Enterprise Architect
- Excel for calculations of complex trigonometric functions

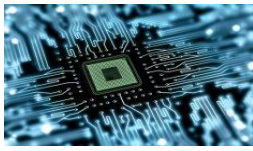
**09/2015 – 12/2015: Senior Automotive Software Engineer with C
Freelancer for Marquardt GmbH, Rietheim-Weilheim, via Eeins GmbH
Stuttgart**

Project Description:

C based Autosar project for Battery Management Controller ECU (BECM) for Audi/Porsche

Tasks:

- OBD2 diagnostic testing according to VW/Audi specifications
- Development of OBD IUMPR support (In-Use Monitor Performance Ratio)



- Setup of DaVinci Configurator IUMPR settings
- Requirements investigation for updates between different versions of documentation

Tools:

- WinIdea, Windriver Compiler
- DaVinci Configurator
- IC5000 iSystems debugger
- Custom Simulation HW, CANoe, Eclipse

**04/2015 – 09/2015: Senior Automotive Software Engineer with C++
Freelancer for Valeo GmbH, Stuttgart, via Eeins GmbH Stuttgart**

Project Description:

C++ based project for Road Laserscanner Device

Tasks:

- Team Tasks distribution and estimation of efforts, project planning for freelancers
- Development of Technical Documentation according to SPICE standard
- Development of SW Unit Tests for complete Template based C++ library
- Development of Process Documents for the complete freelancer team

Tools:

- QtCreator, Eclipse
- DOORS, Serena Dimensions
- Enterprise Architect
- PRQA QAC

**12/2014 – 04/2015: Senior Automotive Software Engineer with C
Freelancer at Valeo GmbH, Stuttgart, via Eeins GmbH Stuttgart**

Project Description:

C based Autosar project for Automotive Park Assistance System

Tasks:

- Debugging and development of Park System Logic based on specifications
- Debugging of Use Case scenarios and HIL testing with full HW simulation
- Research and debugging of memory overwrite bugs related to compiler specifics and memory overflow issues

Tools:

- WinIdea
- Windriver Compiler
- IC5000 iSystems debugger
- Custom Simulation HW, CANoe, Eclipse

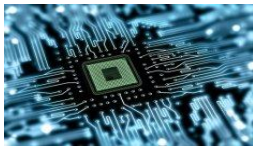
**06/2012 – 09/2014: Senior Automotive Embedded Software Engineer with C
Leopold KOSTAL GmbH & Co. KG, Sofia, Bulgaria / Dortmund, Deutschland**

Description:

Autosar 4.0.3 / RTOS Door ECU for European Car Brand with Renesas MCUs

Tasks:

- Development and Design of SWCs for Autosar System with V850 MCU
- Migration of SWCs to non-Autosar RTOS ECU system based on RL78 MCU
- Development process analysis for the design of Automated API Generation for Data Management



- Requirements Specifications analysis
- Research for ARXML generator for import of CS / SR Ports APIs in DaVinci Developer
- Research for ARXML generator for import of NvRAM/EEL/FDL BSW driver configuration in DaVinci Configurator
- Integration of SWCs in Autosar Environment
- Software design for Data Handling by critical Voltage Drop
- Design of Sustainability, Security Strategies and Restore of Data by NVRAM HW/driver failure
- Design and development of Variant Management Application for complete System Configuration
- Development of LIN protocol for Configuration Transfer to Rear ECUs
- Development of CAPL nodes for Variant Configuration and Simulation (incl. Panel) for CANoe 7.xx and 8.0
- Development in according with MISRA rules and Automotive SPICE
- Design and Development of NvRAM driver Emulation Layer
- Integration of FEE / FDL Libraries
- Unit Tests Design and development
- Test and Debug on Target, SIL, PIL and HIL Tests
- Writing DOORS Documentation
- Responsible in Bulgarian office for HW consumables purchases and measurement instruments research
- Organization of business trips to Germany for Bulgarian part of the team in relation to project goals
- Full SW V-Modell Experience
- Successful Development of Zero Bugs SWCs (confirmed 1 Month after end of the project)

Tools:

- Eclipse IDE, Greenhills MULTI IDE, IAR IDE
- SmartSVN, DOORS, CDB, Serena SBM Teamtrack
- Oscilloscope
- Autosar 4.0.3
- PRQA QAC
- SIL, HIL and PIL Testing
- DaVinci Developer & Configurator
- CANoe, CAPL, CAN, LIN

**05/2010 – 06/2012: Automotive Software Engineer with C/C++
Johnson Controls Inc. (now Visteon), Sofia RND Center, Bulgaria**

Project 1 Description:

C/C++ API Library for Test connection between PC Test SW and TCP connected QNX Target for Infotainment System

Tasks:

- Development of C API Library
- Development of C++ Windows GUI Plugin
- Development of automated Test for +50 Functions API
- Writing SDD Specification and HowTo Document

Tools:

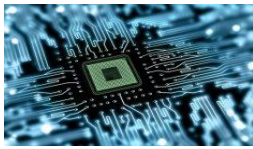
- Microsoft Visual Studio
- C, makefiles, Dimensions
- MISRA PRQA QAC

Project 2 Description:

Instrument Panel Cluster with Dual-Processor-Architecture for General Motors with Integrated Infotainment Functions / Features

Tasks:

- Development of C / C++ Applications
- Requirements Analysis



- Design of Alert Manager Multi Thread Application for 480 Alerts from 16 Classes
- Design and Development of GUI Sender Application
- Design and Development of Unit Tests
- Design of Automated Test for Alerts Applications Suite
- After an year promoted to Software Integrator
- Main responsible for SW Releases and Updates, Creation of Implementation Reports and Versions Bug reports
- Communication with Resident Engineer (India) and Management Team (USA)
- Writing Software Specification Documents
- Complete SW V-Modell Experience

Tools:

- Eclipse IDE
- DOORS
- gdb
- CANoe, CAPL, CAN, MOST Simulation
- MOST Inspector
- MISRA PRQA QAC

**11/2009 – 05/2010: Senior Embedded Software Engineer with C/Python
Antelope Audio (Elektrosfera), Sofia, Bulgaria**

Description:

Design of Embedded SW of a USB Audio DAC and a Python based GUI for Windows PC and MAC (Macintosh / Apple)

Tasks:

- USB Driver Debugging and USB Bus Communication Analysis
- Development of Python based GUI with PyQt
- Development of two Software Installers – one for Window PC and one for MAC
- Development of small MAC C++ Application for USB Driver connection for iOS with Python GUI

Tools:

- Eclipse with PyDev and PyQt
- XCode IDE
- Atmel ARM7 Debugging with Wiggler Jtag and Open OCD
- Tortoise SVN
- Oscilloscope
- USB Bus Analyser

**12/2006 – 09/2009: Senior Embedded Software Engineer - Sensor Drivers with C
MM Solutions, Sofia, Bulgaria**

Description:

Embedded Imaging Application Software for Nokia Mobile Phones with Texas Instruments ARM7 Image DSPs and proprietary RTOS

Tasks:

- Development and design of CMOS Drivers
- Framework Development and Design
- Tutoring/Training Junior Developers
- Test Team leader, Definition of Test Team Tasks
- Responsible for Customer contact for several projects. This included tracking and update of specifications, determining development schedule, preparing client updates, conduction of weekly calls with the client for project status update
- Preparation of Implementation Reports and Test Status reports
- Design of automated On Target SIL and HIL Driver Tests
- Design of complete V-Modell circle in SW Development
- 6 Projects successfully finished and sent to market



Tools:

- Code Composer Studio
- Eclipse, WinMerge, Notepad++
- C, makefiles, Microsoft Source Safe, Microsoft Office
- Custom test IDE for scripted tests
- RTOS measurements via Debug (CPU Load, RAM / ROM, Stack, etc.).
- Oscilloscope
- SPI, I2C

07/2006 – 11/2006: Development Engineer of Automotive ICT Tests
Epiq Electronic Assembly, Botevgrad, Bulgaria

Description:

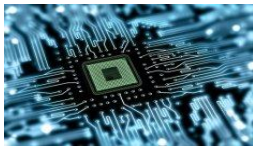
Development and Design of In-Circuit-Testers Programming for Automotive Electronics Production

Tasks:

- Analysis of Customer HW Documentation
- Development and design of Automated ICT (In-circuit Test) Tests
- Waste Analysis

Tools:

- Marconi Testers ICT IDE
- Oscilloscope



3. Education

- Oct 2006 – Sept 2009** **Master (Dipl.-Eng.) Engineer of Electronics (Embedded Devices)**
Technical University of Sofia, Faculty of Electronics
Thesis: "Development of USB Embedded System Communications protocol for control of Embedded Device from PC"
- Oct 2002 – Sept 2006** **Bachelor Engineer of Electronics (Embedded Devices)**
Technical University of Sofia, Faculty of Electronics
Thesis: "Design of FGPA / VHDL based System for Laser Measurement of Physical Dimensions"
- Sept 1997 – May 2002** **High school - Instituto Bilingue "Miguel de Cervantes"**
Specialty Fields: Mathematics, Spanish

4. Language Skills

- **German** : Good
- **English** : Fluent
- **Bulgarian** : Native
- **Spanish** : Good

5. Certifications

- **Automotive Functional Safety Professional** according to ISO26262. Certified by SGS TÜV SAAR GmbH on 07.08.2015, Certificate Number 01057, valid until 17.07.2018