

ABDELLAH MOURCHID

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Summary

Senior Engineering Leader with 20+ years of experience architecting, scaling, and delivering complex, large-scale software systems across mission-critical domains including industrial IoT, medical devices, embedded platforms, and cloud-connected solutions. Proven track record building, mentoring, and empowering large geographically-distributed engineering organizations across the U.S., Europe, India, and China — championing a human-first leadership culture that enables managers and engineers to own decisions rather than dictating outcomes. Demonstrated success defining and executing AI-first engineering strategies that move beyond experimentation to deploy production-grade intelligent systems, including AI-assisted development, automated test generation, and predictive analytics. Deep expertise in software architecture and design patterns, agile methodologies, CI/CD practices, secure cloud and on-premise deployments, and shipping complex products on time and within budget. Adept at navigating security and compliance frameworks (21 CFR Part 11, IEC 62304, FDA QSR; familiarity with GDPR, SOC 2, and ISO 27001 principles), partnering with product management and security stakeholders to deliver scalable, high-trust solutions. Excellent communicator with the ability to influence stakeholders at all levels and align engineering execution with business strategy.

Skills

Technical Skills

- C, C++, Qt, Python, C#, ASP.NET programming
- Embedded systems design (RTOS, QNX, ARM MCU)
- Software development lifecycle (SDLC) expertise
- Networking protocols (Ethernet, TCP/IP, OPC-UA, MODBUS)
- Database management (SQL, SQLite) + Relational
- Software version control (Git, GitHub)
- Web services (HTML, JavaScript, CSS, PHP)
- Unix/Linux/Cygwin knowledge
- Authentication: LDAP/LDAPs
- Mobile app development: Flutter, .Net Maui
- Industrial PID and PLC controllers
- Firmware and PIC Microcontrollers
- Data Management: Audit trail database, 21CFR11 compliance.
- Experience with POSIX, QNX, MISRA, PCB design
- Protocols: RS232-485-422-SPI Flash-I2C-USB-Wireless
- Medical Device Software LifeCycle Processes (IEC 62304)
- Experience with FDA and medical device regulations
- AI/ML integration & AI-first SDLC (AI code review, automated test generation, predictive diagnostics)
- Cloud platforms (AWS, Azure) & SaaS / cloud-connected device architectures
- CI/CD pipelines & DevOps automation (Azure DevOps, JIRA, GitHub Actions, Jenkins)

- Cybersecurity & compliance: GDPR, SOC 2, ISO 27001 awareness; 21 CFR Part 11, IEC 62304
- Large-scale distributed systems & software architecture / design patterns

Soft Skills

- Strategic planning and execution
- Cross-functional collaboration
- Problem-solving and troubleshooting
- Team leadership and development (onsite and remote)
- Effective written and verbal communication and presentation
- Data-driven decision-making
- Project management and coordination (Azure DevOps)
- Building, scaling & empowering global engineering organizations (US, EU, India, China)
- Human-first leadership; empowering managers to own decisions
- AI-first engineering strategy & execution
- Executive communication & cross-functional stakeholder influence
- Shipping complex, large-scale products on time and within budget
- Recruit, hire, mentor and motivate teams

Professional Experience

SR MANAGER SOFTWARE ENGINEERING, Thermofisher Scientific, Franklin, MA

2024- present

As Senior Manager of Software Engineering within Thermo Fisher Scientific, led and scaled a geographically distributed team of software engineers across the United States, Europe, India, and China to concurrently deliver mission-critical software for a portfolio of industry-leading analytical instruments — including the Thermo Scientific iQ Series and iSeries ambient and source gas analyzers, AutoFLEX/AutoSERIES flow computers, MAX-iR FTIR gas analyzer, and Prima PRO/Prima BT process mass spectrometers. Directed the full software development lifecycle (SDLC) across multiple simultaneous product lines — from requirements definition and architectural design through implementation, validation, and release — leveraging JIRA for cross-functional project tracking, sprint planning, backlog grooming, and milestone governance across distributed engineering teams. Defined and executed an AI-first engineering strategy, deploying production-grade AI-assisted development practices — including AI-powered code review, automated test generation, and intelligent diagnostics — to accelerate delivery velocity and improve software quality. Architected and delivered embedded control, real-time data acquisition, and analytics software supporting industrial communication protocols including Modbus RTU/TCP, RS-232/485, OPC-UA, and SCADA integration, enabling seamless factory automation and custody-transfer operations in oil and gas, petrochemical, environmental monitoring, and biotechnology industries. Championed regulatory compliance engineering across products certified to validation standards, and 21 CFR Part 11 requirements. Collaborated closely with product management, hardware engineering, and global field service teams to translate customer and regulatory requirements into robust, maintainable software architectures, resulting in measurable improvements in instrument uptime, predictive diagnostics capabilities, and remote connectivity — including mobile companion applications for real-time analyzer monitoring and field deployment workflows. Fostered a human-first, high-trust culture across the organization — empowering managers and engineers to own technical decisions — while consistently delivering complex, multi-product release cycles on time and within budget.

SR MANAGER SOFTWARE ENGINEERING, Advanced Instruments LLC, Norwood, MA

2018 - 2024

Led cross-functional teams to design and implement modularized software solutions, ensuring project efficiency and adherence to quality and compliance standards.

- Led a software team to deliver key features for medical Osmometer devices, boosting product reliability and enhancing market competitiveness.
- Developed solutions to offer existing instruments-based network capabilities such as data management (Audit trail database, 21CFR11, LDAPs, implemented an embedded Web Server), automatic data backup and export -SMB Network share- and remote communications (implemented an embedded OPC-UA Server).
- Planned and tracked all work to meet the requirements and specifications and the project's deadlines.
- Enhance team efficiency and product quality by refining engineering processes and following best practices (Agile methodologies, Azure DevOps).
- Led the effort to implement cloud computing and storage into embedded medical devices.
- Experience in creating CI/CD-based processes that helped software development teams deliver code changes more frequently and reliably.
- Managed code review and merge sessions; reduced open bugs down to none at release time.
- Led the effort to develop remote ethernet commands to control an automated Plate instrument. OPC-UA clients send commands to a Robot Arm to place plates on conveyor belts and instruct the instrument to continually test.
- Programmed and used SCADA clients to communicate to the instrument's OPC server.
- Responsible for all aspects of software development; reviewing the product requirements, planning development consulting with marketing and other departments.
- Build strong relationships with team members and across functions
- Software-Firmware integration and other components into a fully functional software system

- Document and maintain software functionality, design documents.
- Comply with project plans and industry standards + Managing risks.
- Ensure the software is updated with the latest cybersecurity patches, features, and language translations.
- Organize workflow and integration meetings with marketing and other parties.
- Strong experience recruiting, assessing, and onboarding software engineers at all levels.
- Recruit, hire, and mentor teams of Software Engineers to improve their skills and efficiency.
- Support Service, Customers, and the board house on current and legacy products firmware.
- Architect software for new and fully automated medical instruments (Osmometers)
- Lead software development from scratch to a fully commercialized product.
- Code to control various subsystems for moving well-plates, vials, and tubes to be tested (stepper motors, Tecan pipette systems, conveyor belt, dispensers), save data to a local SQL database, use of the MVVM design pattern, send data to LIS/LIMS System, network locations, OPC clients and Web clients.
- Designed and wrote drivers for an intuitive user interface (Using C++, Qt, HTML, CSS and Javascript) on an embedded RTOS on ARM MCU architecture and 7" color touch screen.
- Established a software delivery schedule and presented daily and weekly project status.
- Directed the delivery of projects, ensuring they are completed on time and within scope.
- Created Software tools used by the software, V&V, Service, and commercial teams to run the instruments, create new scenarios, run demos, and test software in 15 languages.

PRINCIPAL SOFTWARE ENGINEER, Advanced Instruments, Norwood, MA

2013 - 2018

I lead the design and development of complex software systems, driving technical initiatives to deliver innovative solutions.

My responsibilities included: requirements gathering, defining, and prioritizing user stories, handling customer issues, project status, continuous team improvement. Played the role of the tech lead, high level software design and breakdown, feature development.

Coordinated the build management process to integrate new functionalities and software fixes into the project development life cycle.

I interacted with product managers and directly with customers to provide engineering support and solutions.

Developed software components efficiently and accurately based on requirements and client feedback.

Development (design, code, debug) of Osmometer systems using C/C++ in real-time operating systems and embedded system software environment (Linux kernel). Design, code and test software applications and low-level device drivers on embedded real-time operating systems for next generation systems using C/C++. Produced project requirements, system design, software/firmware revisions, and product design review documents.

- Designed a system platform (consists of two boards: control and display boards) to allow for quick product development of many modern products using the same hardware and software/firmware code base.
- Supervised the board design, wrote drivers in C language, wrote a comprehensive serial parser to allow boards to exchange commands and data.
- Designed the software to be run on an RTOS (Nucleus), created all the tasks for the parser, ethernet, USB (keyboard, mouse, and handheld scanner), Audio, database, filesystem (SD card), web server, OPC-UA Server.
- Created User Interface using Qt and C++ as a process on Nucleus RTOS. The interface allows users to login as local users or Active Directory users. Created different access levels, password complexity (21CFR11), date and time synching with SNTP Server, local SQL database to store data and audit trails.
- Daily use of Git repository, recurring code reviews and merges.

SR ELECTRICAL ENGINEER, inTEST thermal Solutions, Mansfield, MA

2002 - 2013

I designed and developed electrical systems and software solutions, optimizing performance and ensuring reliability in complex projects.

- Designed embedded systems, specifically in control systems: Embedded C programming, controls system analysis,

design and implementation, digital and analog hardware design; this includes capturing circuit-board design, coding and debugging to generating release and history documentation, use of emulators, logic analyzers, oscilloscopes, and other test tool for the purpose of debugging designs.

- Developed, improved, and maintained C code for many projects such as the Thermo-Stream and Chuck temperature control system projects.
- Wrote code for Ethernet (embedded web host, telnet protocol), USB (file transfer, connect to computer), SD (data and diagnostics logs) boards.
- Effectively used emulators and debuggers for microcontrollers (such as Microchip PIC32 and Intel 8051) to design and implement firmware in C for LCD touch screen, RS232, FPGA and I2C.
- Developed a comprehensive test lab for conducting regression tests for validation of features.
- Helped develop a complete environment for automation of regression tests using various inhouse tools such as VB scripts.
- Contributed to generation and maintenance of quality documentation such as Product Specifications, Technical Specifications, Code Developer's Guidelines, reviews, and validation.
- Being part of a small engineering group, I had to be multifaceted in my abilities. I assisted test technicians in debugging hardware/software problems on the production floor, sustained engineering efforts by working on several failure analysis studies.
- Reduced the cost of many systems by reviewing and changing the designs to integrate more reliable and up-to-date components.
- I have a variety of skills including web page design, detailed design using Access, Excel, VBA, and VB used to support various activities from custom test programs, quality metrics automation, data reduction and corporate website design.

Education

- **Bachelor of Science in Electrical And Computer Engineering** Northeastern University, Boston, MA
- **Management Development Programs** (Realities and Resources) 2018
- **Project Management for Engineers** (Auxilium) 2015
- **Electronic Products Design and Retrofit for EMC** (Silent Solutions) 2014
- **Qualified numerous times to the World Math Olympiad**
- **I have a patent titled:** 'Apparatus and method for controlling temperature in chuck system ([USPTO Application #: 20080231304](#)) issued September 2008.
- **US citizen**