Robert Duane Edmonds

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SUMMARY

Engineering and R&D executive with 25+ years of experience driving innovation in medical devices, robotics, and automation. Proven record scaling organizations, leading compliance and quality systems, and delivering first-in-class technologies—from pioneering exoskeletons to directing California's highest-volume PCR lab. Known for building high-performing, mission-driven teams and mentoring the next generation of leaders.

EXPERIENCE

10/2022 – present — Consultant — Oakland, CA

- Providing short-term engineering and leadership consulting in automation and technology sectors
- Mentoring engineers on technical and professional best practices

SummerBio — Menlo Park, CA

1/2022 – 8/2022 — Vice President of Engineering

- Directed automation, robotics, cloud computing, LIMS development, and program management for fast-turnaround, high-availability, high-throughput, CLIA-certified COVID-19 PCR clinical diagnostic testing operations.
- Standardized engineering and program management practices, improving uptime and throughput.
- Enabled 20M+ COVID tests with 11-hour average turnaround at an average of $13 cost per test, peaking at 128,000 test per day.

8/2021 – 1/2022 — Director of Automation Engineering

- Boosted COVID testing capacity by 30% through assay, process, and automation improvements
- Oversaw development and validation of an automated, variable-ratio sample pooling system

Johnson & Johnson – Robotics and Digital Solutions — Santa Clara, CA

9/2020 – 7/2021 — Program Manager, Advanced Development

- Managed multiple cross-functional teams on the OTTAVA surgical robotic system
- Led system architecture and requirement definition, risk management, simulation and data analysis, and procedure devel - opment for targeted surgical applications

Ekso Bionics — Richmond, CA

3/2015 – 9/2019 — Director of R&D and Compliance + Director of Medical Products and Systems

- Directed medical device product development, design controls, risk management, and regulatory compliance
- Quality Council – drove data-driven cross-company process and product quality improvements
- Developed company risk management and complaint-handling processes
- Authored Clinical Evaluation SOP and CERs to support EU product approvals
- Responsible for global adverse event monitoring and reporting
- Managed R&D budgets with transparent reporting to executive and finance teams
- **Patent**: US10694948B2, "Methods of exoskeleton communication and control" (2020)

6/2011 – 3/2015 — Director of Software Engineering

- Led software, controls, and embedded systems teams for medical robotics
- Developed standard processes for software development (coding standards, code review, and testing and release), risk management, and human subject testing

7/2009 – 3/2012 — Program Manager

EksoNR (Class II medical robotic exoskeleton)

- Guided development of a first-of-kind robotic exoskeleton enabling neurorehabilitation (SCI, stroke)
- Guided global QMS implementation, CE certification, and launch in 30+ countries (112M+ steps logged)

Human Unified Load Carrier (HULC)

- Directed a $6M R&D program to develop hydraulic exoskeleton prototypes supporting 200 lb. Load carriage at 3 mph for U.S. military field evaluation
- Coordinated cross-site teams (Lockheed Martin Orlando and Berkeley Bionics) spanning engineering, procurement, and production to deliver prototype builds on schedule
- Implemented Earned Value Management (EVM), ensuring cost and performance targets were met with customer report - ing transparency

Agilent Technologies (formerly Velocity11, acquired in 2008) — Santa Clara, CA

10/2006 – 7/2009 R&D Hardware and Systems Engineer, Agilent Automation Solutions

- Designed and launched 5-axis direct-drive, microplate-handling robot (DDR)
- Developed embedded software for motion control, path planning, and exception handling
- Built custom unit testing framework and a rich, diagnostic tool, decreasing downtime

Berkeley Process Control — Richmond, CA

9/1999 – 10/2006 Program Manager + Controls Engineer

- Let robotics projects for semiconductor automation, from design to production
- Developed motion control algorithms and communication protocols for wafer handling systems
- Developed robust and automatic, machine-to-machine calibration (autocalibration) algorithms

Texas A&M University – Vibration Control and Electromagnetics Lab — College Station, TX

11/1997 – 8/1998 Undergraduate Research Assistant

Advisor: Dr. Alan B. Palazzolo
Undergrad Thesis: “Fuzzy Logic Expert System Control of Magnetic Bearings on High-Energy Energy Storage Flywheels”

STANDARDS

21 CFR 820 (QSR), ISO 13485 (QMS), Medical Device Directive 93/42/EEC, IEC 62304 (Software Development), ISO 14971 (Risk Management), IEC 60601-1 (Safety/Essential Performance), HIPAA, MEDDEV 2.7/1 (Clinical Evaluation)

SKILLS

Leadership and Strategy: Objectives & Key Results (OKRs), program and project management (MS Project, Smartsheet), medical device development, agile development (Kanban, Scrum), compliance, risk management, cross-functional team lead - ership

Technical and Tools: Robotics, mechatronics, embedded systems (C, C++, Linux), automation, data analysis and visualization (SQL, Python, R), UI/UX development (ReactJS, TypeScript, Figma, Material UI)

EDUCATION

University of California — Berkeley, CA

8/1998 – 9/1999

Advanced Control Systems, Department of Mechanical Engineering
3.78 GPA, passed Preliminary Examinations for PhD candidacy

Texas A&M University — College Station, TX

8/1993 – 7/1998

Bachelor of Science, Department of Mechanical Engineering – Dynamics and Control Systems
3.96 GPR (major), 3.93 GPR (overall), *summa cum laude*