Robert Duane Edmonds

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STATEMENT   Engineering and R&D leader with over 25 years of experience building high-performing teams that deliver innovative solu -
tions in medical devices, robotics, and automation. Solid background in scaling organizations, global compliance, business
management, and coaching—from launching first-in-class exoskeletons to leading California's highest-volume PCR lab.

EXPERIENCE

SummerBio   Menlo Park, California

1/2022 – 8/2022   **Vice President of Engineering**
- Led automation and robotics engineering, cloud computing, Laboratory Information Management System (LIMS) develop -
  ment, and program management. Directed a team committed to making a difference in fast-turnaround, high-availability,
  high-throughput COVID-19 qRT-PCR (quantitative reverse transcription PCR) clinical diagnostics
- Established engineering and program management standards and processes
- Guided data-driven enhancements in assay efficiency, testing capacities, lab efficiency, system uptime, and reliability in
  California's highest-volume, CLIA-certified PCR laboratory (20 million COVID tests, 11-hour average turnaround, $13 aver -
  age price per test, peaked at 128,000 tests in 24 hours)

8/2021 – 1/2022   **Director of Automation Engineering**
- Increased overall testing capacity by 30% through the systematic identification and implementation of assay, process, and
  automation improvements
- Managed the development, implementation, verification, and assay validation of a variable-ratio, high-throughput auto -
  mated sample pooling system

Johnson & Johnson   Santa Clara, California

9/2020 – 7/2021   **Program Manager, Robotics and Digital Solutions (RAD), Advanced Development**
- Managed multiple cross-functional teams in the design and development of the OTTAVA surgical robotic system (robot-
  assisted surgery)
- Drove the development of system architecture and requirements, system hazard analysis risk management activities, sim -
  ulation and data analysis, and support of procedure development (e.g., gastric bypass, ventral hernia, hysterectomy, partial
  nephrectomy) and workspace analysis

Ekso Bionics   Richmond, California

3/2015 – 9/2019   **Director of R&D and Compliance + Director of Medical Products and Systems**
- Led medical device product development, product lifecycle processes, design controls, verification, product and process
  validation, risk management, and customer complaint handling activities and processes
- Program Manager for medical device product development
- Ensured product and process compliance with the Quality Management System (QMS)
- Quality Council – Coordinated cross-company efforts to improve processes (effectiveness and efficiency), product quality,
  and device reliability using data from post-market surveillance activities
- Developed and implemented company-wide risk management processes
- Coordinated the preparation of Clinical Evaluation Reports (CERs) to support products in the European Union and authored
  a Clinical Evaluation standard operating procedure (SOP)
- Responsible for global adverse event monitoring and reporting
- Developed a complaint handling system and complaint database to enable data-driven analysis and enable process im -
  provements
- Performed customer complaints data analysis and identified performance improvement opportunities
- Managed the R&D budget in a dynamic environment and provided consistent, detailed reporting on projections vs actuals,
  working intimately with accounting and executive teams
- **US Patent US10694948B2** – Methods of exoskeleton communication and control (published 2020-06-30)

6/2011 – 3/2015   **Director of Software Engineering**
- Led a strong team of Software, Controls, and Embedded Systems Engineers responsible for design, development, and
  testing of software for all medical products
- Responsible for creating, maintaining, and communicating the company's medical device software development pro -
  cesses (e.g., coding standards, code reviews, testing and release processes)
- Developed standard processes for software development, risk management, and human subject testing

- Served on review board for product stage and phase gate reviews, led product safety and effectiveness, development stage progress, design outputs and documentation

7/2009 – 3/2012 **Program Manager**

EksoNR (class II medical robotic exoskeleton)
- Led an exceptional development team in developing a first-of-kind battery-powered, bionic exoskeleton system to enable more efficient neurorehabilitation for people with lower-extremity weakness (e.g., spinal cord injury (SCI), stroke) – over 112 million steps taken globally in more than 30 countries (2019)
- Guided the program stage-gated product development process through requirements generation, hazard analysis, risk as - sessment and mitigation, verification and validation, and design transfer into production
- Coordinated the company's efforts to implement a global QMS to support the product release schedule for the launch of the company's first commercial and first medical product; authored and assisted with the development of several core SOPs for product lifecycle management (stage gate reviews, design control, software development, verification and vali - dation, design transfer, risk management, post-market surveillance).
- Obtained device CE certification enabling access to the European Union market 3 months after US release; developed and packaged Technical Documentation and supported review by Notified Body

Human Unified Load Carrier (HULC)
- Led successful $6M R&D project to develop and build rugged, hydraulic load-carriage (up to 200 lbs. at 3 mph) exoskele - ton prototypes for field evaluation (e.g., VO2 max metabolic costs) by military personnel at the Soldier Research, Develop - ment and Engineering Center in Natick, Massachusetts
- Coordinated development, procurement, and build efforts between engineering, procurement, and production teams in Orlando, Florida (Lockheed Martin) and Berkeley, California
- Reported detailed, monthly cost and performance progress using Earned Value Management (EVM)

Agilent Technologies (acquired Velocity11 in 2008)   Santa Clara, California

10/2006 – 7/2009 **R&D Hardware and Systems Engineer, Agilent Automation Solutions**
- Developed a 5-axis direct-drive microplate-handling robot (DDR) from initial feasibility exploration to full production
- Developed multi-threaded embedded software for a multi-axis embedded motion controller, including path planning, a custom low-level diagnostic interface, scheduler, system monitor, and exception handling
- Led performance optimization
- Designed parameterized path planning and trajectory algorithm to coordinate motion on a 3-axis microplate handling sys - tem, including collision avoidance
- Built custom unit testing framework
- Developed rich, diagnostic command line interface that aided troubleshooting and decreased downtime

Berkeley Process Control   Richmond, California

9/1999 – 10/2006 **Project Manager + Controls Engineer**
- Project Manager for various semiconductor wafer handling and robotics development projects
  - Guided engineering development, procurement, and production
  - Tracked development effort and material costs
  - Negotiated equipment acceptance definitions
- Controls Systems Lead for design and development of motion control system software
  - Designed control software for multi-axis coordinated motion, error handling, and user interfaces
  - Developed robust and automatic, machine-to-machine calibration (autocalibration) algorithms
  - Designed a light, custom and secure communication protocol with validated data integrity
- Developed an algorithm that allows the exact specification and control to a non-radial, linear point-to-point path and mo - tion profile for 200mm and 300mm wafer handling robotic arm
- Designed and developed a control scheme for a pneumatic servo system (accurate position control of an instrumented pneumatic cylinder) involving control hardware selection and software design

Texas A&M Vibration Control and Electromagnetics Laboratory   College Station, Texas

11/1997 – 8/1998 **Undergraduate Research Assistant**
Advisor: Dr. Alan B. Palazzolo
Fuzzy Logic Expert System Control of Magnetic Bearings on High-Energy Energy Storage Flywheels

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

STRENGTHS   Objectives & Key Results (OKRs), medical device development (design controls, risk management, requirements manage - ment), program and project management (Microsoft Project, Smartsheet), agile software development (Kanban, Scrum, Jira, Test Driven Development), mechatronics, embedded systems (C, C++, Linux), data analysis and visualization (SQL, R, Python), domain-specific language (DSL) development, graphical user interface (GUI) development (JavaScript/TypeScript, ReactJS, Figma, Material UI)

EDUCATION

University of California
8/1998 – 9/1999

Berkeley, California

Advanced Control Systems, Department of Mechanical Engineering
3.78 GPA, Successfully passed Preliminary Examinations for doctoral degree candidacy

8/1993 – 7/1998
Texas A&M University

College Station, Texas

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