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Ryan Moody, P.E.

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18 years leading multi-disciplinary teams in highly integrated electro-mechanical system development	Encourage collaboration, build consensus, establish direction that everyone is willing to own	Invent and develop concepts that work, then advance them into products on time and within budget
Project planning and management, design and development processes, assembling and hiring teams, customer interface, subcontractor management and conflict resolution	Expert user of SolidWorks and Onshape, proficient with MatLab, LabView, several CAM programs, C++, HTML, Python and JAVA programming, CFD, Structural FEA, IEC 60601 testing	Expert fabricator, CNC machine tools and fabrication equipment. Additive manufacture processes. Composites, Welding, weldment design, process and procedure selection
Electro-mechanical system designer; actuators, motors, gears, bearings, hydraulics, pneumatics, pressure vessels and seals, circuit analysis, printed circuit board design, batteries and power sources, sensors, micro-processor selection and integration, aero/hydrodynamic design and control, propellers, DFM/DFA, injection molding and mold design, prototype assembly, fasteners, electrical connectors, rapid prototyping and additive manufacturing, testing and validation procedures and statistics, intellectual property, product sterilization processes, ISO 13485 design facility registration, Historic building renovation expert, all aspects of construction, construction and subcontractor management and interface with planning and inspections depts.		

Physcient Inc., Durham, NC: Jan. 2013 to Present

Chief Technology Officer:

- Currently leading a multi-disciplinary team to design, prototype, evaluate and manufacture open surgery, laparoscopic and endoscopic versions of the Physcient Differential Dissector (DD) technology. I establish technical direction for the company as we advance automated surgical instrument designs from concept to production to clinical use.
- I attend labs and clinical procedures, interview surgeons and incorporate their feedback into subsequent design iterations. Work with our regulatory team to define FDA engagement strategy and provide requisite testing, validation and documentation. Do technical presentations of our surgical instruments to potential and current investors, board members and potential strategic partners.
- I schedule and facilitate design reviews and brainstorming sessions, produce requirements and specifications, set design and build schedules, incorporate DFM and DFA best practices into our designs, document assembly procedures, train assemblers and work closely with our contract manufacturer and vendors. Lead the assembly of prototype devices and perform testing to verify requirements compliance.
- **Accomplishments:** I've taken the DD1 device from concept to production to clinical use (>500 human surgeries), I've taken the Laparoscopic DD from concept through iterative design and evaluation and now it's ready for manufacture. Invented and built Endoscopic DD devices that have been evaluated by surgeons. Lead inventor and Co-Inventor on multiple patents. Each of these accomplishments has significantly increased Physcient's valuation, attracted new surgeons and strategic partners and enabled better outcomes for patients.

iRobot Inc., Durham, NC / Bedford, MA — Acquisition of Nekton Research, Sept. 2008 to Dec. 2012

Senior Research Scientist / Principal Investigator

Recipient of iRobot "Rock Award" for excellence in leadership and innovation

- **Countermeasures:** Project Manager for all US Navy Mobile Acoustic Countermeasure projects at iRobot and Nekton Research. Led multi-disciplinary engineering team and subcontractors to design, build, test, and demonstrate 4 vehicle variants. Designed and led development effort for 3 patented propulsion and vehicle control technologies. Managed large budget and multiple subcontractors. Planned and directed field testing, demonstrations and integration with ship equipment. Secured 4 rounds of funding for Countermeasure programs totaling **$9.5M over 5yrs** (this project spanned from Nekton Research to iRobot). Transitioned Mobile Acoustic Countermeasure designs to Argon ST / Boeing for production. Customers: Office of Naval Research, PMS415, Naval Undersea Warfare Center
- **Reacquire, Identify, Localize, Swimmer (RILS):** Project Manager for the RILS Port and Harbor Security System. Led a multi-disciplinary engineering team and subcontractors to develop a high-speed platform for Port and Harbor security for acquisition by US Navy. Secured 3 rounds of funding totaling **$5.2M over 3yrs**. Customers: Office of Naval Research, SPAWAR Systems Center Pacific
- Wrote proposals, produced budgeting and costing for multi-disciplinary engineering efforts, managed requirements and specifications, customer interface before and after contract award, presented designs, budgets and schedules at design reviews.

Nekton Research LLC, Durham, NC **March 2000 - iRobot Acquisition in Sept. 2008**

Grad School Intern - Lead Mechanical Engineer – Principal Investigator – Chief Engineer:

- **BioBay:** Principal investigator for the Army SBIR "In situ Aquatic Biomonitoring Platform" project. Led a multi-disciplinary / multi-partner team of EE, ME, Software and Aquatic Toxicologists to develop a whole organism biosensor. Secured 3 rounds of funding totaling **$4.3M over 4yrs** from US Army Center for Environmental Health Research, transitioned to product and sold it to the US EPA.
- **Gamera:** Developed an AUV for Nekton Research for my master's degree project. I employed NCSU and Duke engineering students for sensor integration, programming and participation in AUVSI student competition.
- **Microhunter:** Developed trim system that permitted quick trim adjustments in pitch, roll and overall buoyancy.
- **Field Testing and Demonstration:** Developed field-testing safety best practices for Nekton. Directed testing, customer demonstration and fleet evaluation of our underwater robotic technologies. Certified Nitrox, Certified Rescue Diver, underwater videography, lost asset search and retrieval.

Parata Systems, Durham, NC **Jan 2001 – May 2002 as part of Nekton Technology Incubator**

Parata Systems spun out of the Nekton Research technology incubator. I am one of the inventors of the patented Parata pill dispensing and counting technology. I also designed several sub-systems for the Parata Robotic Dispensing (RDS) machine. Parata has since grown to employ hundreds of people, the RDS machines have filled billions of prescriptions around the world and in Dec 2018, Frasier Healthcare Partners acquired Parata Systems.

NCSU Mechanical Engineering Co-op:

- **Meritor Automotive HVS**, Fletcher, NC: **May – Dec 1998**
- **Volvo Construction Equipment AB**, Skyland, NC: **May 1995 – May 1997**

Teacher, Presenter, Refugee Resettlement and STEM Outreach: **2001 - Present**

- During Grad school at NCSU, I was a teaching assistant for a robotics competition class and safety officer / teacher / consultant for the student machine shop.
- Throughout my career I have taught new-hires, co-workers, and interns to perform well in the following areas: engineering analysis, electro-mechanical design, CAD / CAM systems, project management best practices, field testing robotic systems, welding and cutting safe practices, standard and CNC machine tool programming, operation and safe practices.
- I have been a presenter at numerous outreach events for the NC Museum of Life and Science, Robot Rumble and Engineering Day. Presenter at Professional Engineers of North Carolina 2019 Summer Conference.
- My family and I have been involved in helping resettle refugees in Durham NC. In parallel with the resettlement efforts, I've done STEM teaching and outreach with kids and parents in the refugee community. I also help with projects and homework and take Dads and kids on camping trips.
- I serve on the World Relief Refugee Resettlement Development Board.

Flying: **2003 – Kids**

- FAA certificated, instrument rated, private pilot with >300 hours in fixed wing aircraft and helicopters.
- Endorsements for conventional landing gear (tail wheel), and complex and high-performance aircraft.
- Experience operating out of everything from Class C airports to cow pastures
- I enjoy Kiteboarding, Hang Gliding, and flying RC planes, helicopters and drones

Education:

- **North Carolina State University, Raleigh, NC** *Graduated May 2001*
  Master's degree, Integrated Mfg. Systems Engineering, Mechatronics Concentration, (GPA 4.00)
- **North Carolina State University, Raleigh, NC** *Graduated May 1999*
  Bachelor of Science degree, Mechanical Engineering, (GPA 3.70)
- **Asheville Buncombe Technical Community College**
  Welding Technology Program, evening classes, Sept 1995 – Aug 1999

US Citizen: Previously held / eligible for US Government Security Clearance.