

Ryan Whitehill

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I am a software engineer with a college-level background in engineering and a honed aptitude for comprehending unfamiliar topics quickly. I have a versatile skill set and a wide knowledge base encompassing physics principles, mechanics, circuits, and an array of programming languages. Between my experiences with lab work and group projects I have gained a focused, technical mindset that I apply to my work.

Skill-base and Technical Knowledge

Computer Science and Programming

- Programming experience in Javascript, Ruby, HTML, CSS, C++, Java,
- Numerical analysis with Mathematica, MATLAB, Mathcad
- Implementation of optimization structures in AMPL; optimization of linear and non-linear systems, for continuous and discrete variables
- Arduino Micro-controller programming using both built in IDE and Atmel Studio
- Experience with setting up communication between devices using both GPIB and serial methods
- Familiarity with some object and pose recognition methods utilized by devices such as Microsoft Kinect
- Computer skills with MS Office, LaTeX, InkScape

(recent) Work Experience

- General Assembly
- Employed as a tutor by Baron Education. Currently tutoring students preparing for the SAT and ACT standardized exams. (2018-current)
- Project Cure Volunteer. Ran basic diagnostics on medical devices to ensure they operate correctly. Also identified, sorted, and packed donated medical supplies and equipment to be sent to developing countries. (2013, 2016-2017)
- Employed by the Physics Department at Colorado School of Mines. Responsibilities included test and write LabVIEW code used to communicate with measurement equipment and troubleshoot for errors in various measurement setups for photoelectric cells. (2014-2015)
- Teaching Assistant for Physics II - Introduction to Electricity and Magnetism; responsibilities included student instruction, office hours, and grading duties. (2012-2014)

Project Experience

- Experimental biomechanics; collected and processed electromyography data to correctly determine the timing of specific arm motions.
- Robot control; utilized Matlab to simulate a control system for the cable driven arm designed in musculoskeletal biomechanics.
- Engineering physics senior design; individual project to design and construct laboratory setup for measuring properties of experimental photovoltaic cells.
- Musculoskeletal biomechanics; utilized OpenSim to determine ideal locations for cable positions and orientations for a cable articulated prosthetic.
- Computational biomechanics; designed a simple total knee replacement using Solidworks, and verified its outputs using Abaqus Knee Simulator.

Education and Qualifications

Master of Science Mechanical Engineering, Focus in Bio-Mechanical Engineering;

Colorado School of Mines; Golden, CO

Bachelor of Science Engineering Physics, Minor in Computer Science; Colorado School of Mines; Golden, CO

Passed Fundamentals of Engineering Exam

Six Sigma Green Belt Certification

(supplemental knowledge base/skillset)

Mechanical Engineering

- Mechanical Engineering fundamentals; static and dynamic mechanics, fluid systems, heat transfer, machine design,
- Robotic arm design and control
- Mechatronics principles, design of haptic feedback devices
- Understanding of and experience with Solidworks, LabVIEW
- Experience with individual and small group projects involving design, verification, and validation

Bio-Mechanical Engineering

- Joint kinematics, forward and inverse dynamics
- Motion capture, force plate, EMG systems using and related data analysis methods
- Biomechanical software; Mimics, AnyBody, Abaqus Knee Simulator, OpenSim, FE Bio
- Practice modeling the human musculoskeletal system using computer simulations
- Basic knowledge of biomaterials; material types, desirable characteristics, biological complications

Engineering Physics

- Strong understanding of Newtonian mechanics and its application to mechanical systems
- Strong understanding of the principles of electricity and magnetism
- Lab use with optical systems: lenses, polarizers, wave plates, beam splitters, laser emitters
- Vacuum system assembly and testing experience
- Hands on and lecture based understanding of analog and digital circuitry; experience in circuit analysis, design, and construction