Jack Doan

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Summary: Computer Engineer with leadership experience and academic training at the University of Texas at Dallas. Proven skills in circuit design, research, and system integration, with a strong background in both embedded systems and robotics. Excited about solving problems and learning new things in the process.

Education: The University of Texas at Dallas, B.S. Computer Engineering, May 2018   GPA: 3.1/4.0
Coursework: Computer Architecture, Real Time Operating Systems, Signals & Systems

Engineering Projects and Experience:

Senior Design Project: Air-Hockey Robot for Sci-Tech Discovery Center   August 2017 - Current
- Designed and built an air-hockey-playing robot for a local science museum to get kids excited about STEM
- Computer vision system tracks the puck's location in real time and estimates its trajectory
- Control inputs and strategy decisions are visualized to show guests how the robot thinks
- High-performance actuator moves to protect the robot's goal, intercept the puck, and take shots.
- Led the team of five other students. Coordinated meetings with stakeholders, & managed deliverables.

Student Researcher at the Locomotor Control Systems Laboratory   April 2015 - Current
- Mentor for Undergraduate Interns:
  - Provided guidance and leadership to a team of three interns
  - Demonstrated how to use classroom knowledge in order to achieve the lab's research goals
  - Worked together to refine high-level designs into buildable, reliable prototypes
- Control Strategy Implementation:
  - Worked with PhD candidates to get their control strategies off of the whiteboard and into reality
  - Transformed scientific literature into precise, testable software requirements
  - Used Agile methodologies to develop software quickly, while ensuring the users needs were met
  - Documented code to allow non-programmers to understand and tweak it
  - Successfully tripled system performance by overhauling legacy code to meet modern standards
- Comet Exoskeleton:
  - The Comet Exoskeleton is a powered lower-leg orthotic device that helps its wearer walk
  - Designed to facilitate rehabilitation of stroke patients who need to learn to walk again
  - Capable of fully tracking the users gait cycle and applying the up to 40% body weight support
  - Implemented control laws, wrote device drivers and designed printed circuit boards
  - Operated the device & monitored sensor data for safety during human subject experiments

Electrical Team Leader for UTD Combat Robotics   October 2014 - May 2017
- Designed, built and competed with UTDs flagship combat robot: The Blender
- Built with a titanium shell, 9000 Watts of electric motors, and four steel teeth spinning at over 100 mph
- Designed custom motor controllers, which save the team an average of $200 per round of combat
- Led the team to a smashing success in 2015, with a 3rd place finish at the international RoboGames

Publications:
- H. Zhu, **J. Doan**, C. Stence, G. Lv, T. Elery, R. Gregg, 'Design and validation of a torque dense, highly backdrivable powered knee-ankle orthosis' *IEEE Int. Conf. Robotics and Automation*, 2017.
- T. Elery, S. Rezazadeh, C. Nesler, **J. Doan**, H. Zhu, R. Gregg, 'Design and benchtop validation of a powered knee-ankle prosthesis with high-torque, low-impedance actuators' *Submitted: IEEE Int. Conf. Robotics and Automation*, 2018.

Technical	C/C++	Java	Python	Verilog	Computer Vision	Embedded Systems
Skills	KiCAD	Altium	LabVIEW	MATLAB	PCB Design	SMD Soldering
	Linux	Git	RTOS	DSP	Motor Control	Power Electronics
	ARM	AVR	MSP430	C2000	Serial Communication	Use of Test Equipment

Availability: Full time: May 2018. US Citizen. Willing to relocate.