

# 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
- As team leader, directed a team of six students, coordinated with stakeholders, and managed deliverables

Student Researcher at the Locomotor Control Systems Laboratory April 2015 - Current

- Mentor for Undergraduate Interns:
  - Demonstrated how to use classroom knowledge in order to achieve the lab's research goals
  - Collaborated with three interns to refine high-level designs into buildable, reliable prototypes
  - Outlined requirements and provided constructive criticism
- Control Strategy Implementation:
  - Worked with PhD candidates to prototype cutting-edge research devices
  - Transformed scientific literature into precise, testable software requirements
  - Used Agile methodologies to develop software quickly, while ensuring the user's 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
- Powered Lower-Limb Exoskeleton:
  - Designed and built the electrical subsystems that facilitate locomotor rehabilitation of stroke patients
  - Wrote software to track the users gait cycle and apply the up to 40% body weight support
  - Implemented control laws, wrote device drivers, and designed printed circuit boards
  - Operated the device and 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 UTD's 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.

<b>Technical Skills</b>	C/C++	Java	Python	Verilog	Computer Vision	Embedded Systems
	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.