Jack Doan
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Professional Experience:

Senior Vehicle Cybersecurity Consultant at Blackberry Cylance — Plano, TX February 2019 - Current

- Performed full-scope, black-box cybersecurity testing of Fortune 10 client's vehicles and connected ecosystem
  - Extracted firmware, encryption keys, and other intellectual property from devices under test
  - Discovered vulnerabilities in extracted code with software reverse engineering tools (IDA Pro, Ghidra)
  - Attacked wireless interfaces on the vehicle, including WiFi, Bluetooth, LTE, UHF, LF
  - Developed custom exploits for a variety of targets, from cloud infrastructure to brake controllers
  - Delivered live demos to C-level executives to effectively communicate cybersecurity risk
- Drove cybersecurity culture change;
  - Bridged executives, legal, & engineering by communicating results in a way they each understood
  - Taught suppliers, in-house teams, international decision makers the importance of defense-in-depth
  - Fostered open communication between security and engineering teams

Software Engineer II at Collins Aerospace February 2018 - February 2019

- Mission Software Systems - NAVAIR E6-B Mercury
  - Maintained mission-critical message-processing and radio-control software for NAVAIR
  - Brought a 15 year old software project into compliance with modern cybersecurty best-practices
  - Led the effort to split a legacy monolithic Java application into highly available microservices
  - Reduced my team's delivery process from 1 week to 2 hours, saving us more than 6 weeks per year
- Mission Software Systems - Common VLF Receiver (CVRi)
  - Developed secure crypto-key management systems with Wind River Linux and Keil CMSIS-RTOS
  - Decreased system startup time by 50% by threading GPS synchronization process
  - Debugged and resolved real-time Ethernet communication issues with legacy hardware
  - Collaborated with hardware team to port reference drivers to our hardware

Student Researcher at the Locomotor Control Systems Laboratory April 2015 - January 2018

- 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 user's gait cycle and apply up to 40% body weight support
  - Implemented control laws, wrote device drivers, and designed printed circuit boards

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

Publications:

- **J. Doan**, J. Rawlins, 'TP-Link Archer C5: Authenticated remote code execution through malicious configuration file upload' *CVE-2018-19537*, 2018
- T. Elery, S. Rezazadeh, C. Nesler, **J. Doan**, H. Zhu, R. Gregg, 'Design and validation of a powered knee-ankle prosthesis with high-torque, low-impedance actuators' *IEEE Int. Conf. Robotics and Automation*, 2018.
- 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.

Technical Skills	C/C++	Java	Python	Verilog	Combat Robotics	Embedded Systems
	IDA Pro	Ghidra	GDB	grep	PCB Design	SMD Soldering
	Linux	Git	RTOS	DSP	Motor Control	Power Electronics
	ARM	AVR	PowerPC	RH850	Reverse Engineering	Use of Test Equipment

Availability: US Citizen with security clearance. Prefer to remain in the DFW area.