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	radare2	GDB	grep	BGA Rework
	Linux	Git	RTOS	DSP	PCB Design	CAN/J1939/ISO-15765
	ARM	AVR	PowerPC	RH850	Reverse Engineering	Use of Test Equipment

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