Brian K. Johnson

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US citizen able to obtain DOD, DOE clearance

Experience

Max Planck Institute for Intelligent Systems **Nov. 2022 – present**
Postdoctoral Research Scientist, Robotic Materials Department *Stuttgart, Germany*

- Led research projects in haptic/wearable robotics, electrostatic systems, and control theory.
- Developed ML-based algorithms for a visual-haptic interactive device.
- Designed a wearable soft exosuit for spine and lumbar support in occupational settings.
- Organized scientific conferences and managed laboratory equipment.
- Published research in peer-reviewed journals and presented at international conferences.

Advanced Medical Technologies Laboratory **Aug. 2018 – Aug. 2022**
National Science Foundation Graduate Research Fellow *Boulder, CO*

- Managed collaborative robotics projects resulting in peer-reviewed journal publications.
- Implemented real-time MIMO control of a 100-actuator, 100-sensor nonlinear interactive robot.
- Designed and evaluated novel control algorithms for dynamic object manipulation tasks.
- Wrote successful grant proposals to secure research funding totaling $150k.

Sandia National Laboratories **Jun. 2017 – Aug. 2018**
R&D Intern, Structural Dynamics Research Department *Albuquerque, NM*

- Performed multi-input/multi-output analysis on mechanical vibration tests.
- Developed signal processing algorithms to filter harmonic noise from test data.
- Published an open-access technical report to share signal processing techniques.

Lockheed Martin **Jun.– Aug. 2016**
Technical Specialist Intern, Rotary and Mission Systems *Owego, NY*

- Tested VH-92 helicopter flight hardware under thermal, vibration, and shock environments.
- Analyzed stresses in flight rack panels and stiffeners for FAA certification.

Skills

Fabrication/Equipment: Mill/Lathe, 3D printer, laser cutter, oscilloscope, NI-DAQ
Programming: Python, C++, MATLAB/Simulink, Git, LaTeX
Software: SolidWorks, Microsoft Office, Blender, Adobe Lightroom, Affinity Designer, Davinci Resolve

Education

Doctor of Philosophy, Mechanical Engineering | University of Colorado Boulder **Aug. 2022**
National Science Foundation Graduate Research Fellowship

Master of Science, Mechanical Engineering | University of Colorado Boulder, GPA 3.9 **May 2020**

Bachelor of Science, Mechanical Engineering | Cornell University, GPA 4.0 **Dec. 2017**

Selected Publications

BK Johnson*, M Naris*, et al., "A multifunctional soft robotic shape display with high-speed actuation, sensing, and control," *Nature Communications* **14**, 4516. (2023)

V Sundaram*, K Ly*, **BK Johnson**, et al., "Embedded magnetic sensing for feedback control of soft HASEL actuators," *IEEE Transactions on Robotics* **39**, 808-822. (2022)

BK Johnson, "The Development and control of soft robotic materials driven by hydraulically amplified self-healing electrostatic (HASEL) actuators," *University of Colorado Boulder*. (2022)

BK Johnson, et al., "Identification and control of a nonlinear soft actuator and sensor system," *IEEE Robotics and Automation Letters* **5**, 3783-3790. (2020)

B Johnson, JS Cap, "Removal of stationary sinusoidal noise from random vibration signals," *Sandia National Lab*, SAND-2018-1900. (2018)

*equal contribution

Personal Interests

Aviation (Private Pilot), Mandarin Chinese, Piano, Photography, LEGO, Science fiction