



Charlotte Guertler, PhD

Mechanical Engineer
Aerospace and Biomechanics



charlotteguertler.github.io



orcid: 0000-0003-0605-0239



LinkedIn: Charlotte Guertler



charlotte.guertler@gmail.com

About me

Charlotte is a mechanical engineer specializing in biomechanics and aerospace. She has experience in finite element analysis, mechanics, imaging, design, 3D bioprinting, material characterization, and project management. She is currently a mechanical engineering analyst at L3Harris. Previously, Charlotte was a Senior Scientist in brain biomechanics research and the associate director of the engineering design makerspace at Washington University and consulted for a neuroscience startup. Charlotte is excited to leverage her extensive analysis, research, design, and fabrication experience in R&D engineering.

Skills

R&D

Finite element analysis, animal/human studies, MR imaging, MR elastography (MRE), focused ultrasound

Engineering Software

Femap, COMSOL, SolidWorks, Autodesk Fusion 360, Tinkercad

Building, fabrication, prototyping 3D printing, laser cutting, machining & fabrication, welding, woodworking, sandblasting & powder coating, injection molding, vacuum forming

Publishing Software

Adobe Illustrator, Adobe Photoshop, CorelDRAW, Inkscape, LaTeX

Education

2019	PhD Mechanical Engineering & Materials Science Certificate in Imaging Science & Engineering	Washington University in St. Louis
2017	MS Mechanical Engineering & Materials Science	Washington University in St. Louis
2014	BS Mechanical Engineering, ABET accredited	Yale University

Research and Work Experience

2023-pres.	Mechanical Engineering Analyst Supervisors: Dave Calabrese and Kayla Mastovich Finite element analysis of static, dynamic, and optical survival and performance for the telescope of weather satellite pre-production.	L3Harris
2022	Engineering Consultant Supervisor: Julia Whitehead Product development of neuroscience-based infant language training device.	RAPT Ventures, Inc.
2021-22	Senior Scientist Supervisor: Dr. Philip Bayly Demonstrate immediate changes in brain mechanical properties post-mortem using MRE and create 3D bioprinted hydrogels with tunable anisotropy. Responsibilities: conduct research, supervise PhD, masters, and undergraduates, manage projects, write publications and proposals	Washington University in St. Louis
2021-22	Engineering Consultant Supervisor: John Chong Design, prototype, and fabricate novel ultrasound phantoms, demos, and experimental setups	DeepSight Technology
2019-22	Associate Director Supervisor: Dr. Ruth J. Okamoto Design and manage curriculum, vision, and operations for university-wide makerspace	Spartan Light Metal Products Makerspace
2019-21	Staff Research Scientist Supervisor: Dr. Philip Bayly Develop novel anisotropic analysis for MR imaging of harmonic ultrasound-induced motion (MR-HUM) using machine learning and FEA and show effects of aging on anisotropy in brain using MRE.	Washington University in St. Louis
2015-19	Graduate Student Researcher Supervisor: Dr. Philip Bayly Demonstrate mechanical property differences between in vivo and ex vivo brain, develop novel imaging method: MR imaging of harmonic ultrasound-induced motion (MR-HUM), and investigate anisotropy using finite element analysis.	Washington University in St. Louis

13 manuscripts in peer-reviewed journals

2 patents

References

Philip V Bayly, PhD
The Lee Hunter Distinguished Professor of Mechanical Engineering
Chair, Mechanical Engineering & Materials Science
Washington University in St. Louis
pvb@wustl.edu; 314-935-6081
Dave Calabrese
Senior Systems Engineer, Optical Payload Engineering
General Atomics
Previously: L3Harris Mechanical Engineering Manager
calabrese.dave@gmail.com; 508-930-6318