Di Fan

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EDUCATION

Case Western Reserve University, School of Engineering Sep 2021 - May 2024

M.S in Mechanical Engineering Cleveland,OH

Lanzhou University, College of Civil Engineering and Mechanics Sep 2016 - Jun 2020

B.S in Theoretical and Applied Mechanics Lanzhou, China

RESEARCH EXPERIENCE

OsTend Massive Rotator Cuff Tears Repair Aug 2023 - Present

Student Researcher Case Western Reserve University

Advisor: Ozan Akkus, Professor at Department of Mechanical and Aerospace Engineering, Case Western Reserve University

- Assist design of implatation procedure and conducting surgery on rabbit
- Dissect and test rabbit shoulder mechanically to evaluate the repair of infraspinatus tendon
- Assess bone, tendon and muscle through histology

Polycaprolactone Stent For Treatment of Tracheal Stenosis Mar 2022 - Present

Student Researcher Case Western Reserve University

Advisor: Ozan Akkus, Professor at Department of Mechanical and Aerospace Engineering, Case Western Reserve University

- Designed and optimized auxetic and non-auxetic stent structures based on Solidworks finite element simulation and mechanical testing
- Manufactured polycaprolactone (PCL) stent through 3D-printing
- Addressed the compressibility during deployment and ability to stabilize trachea after deployment through mechanical test
- Develope nanofibrous PLGA layer to deliver dexamethasone and EGF
- Conducted cell viability assay to confirm the effect anti-inflammatory and epithelialization

Effect of Longitudinal Strain and Width on Transverse Curvature of YBCO Tape during a Tensile Test Dec 2019 - May 2020

Lanzhou University

Student Researcher

Advisor: Cong Liu, Assistant Professor at College of Civil Engineering and Mechanics, Lanzhou University

- Applied COMSOL modeling and simulating the theoretical response of a multilayer tape
- Measured the longitudinal strain with DIC method and the curvature displacement using laser displacement measurement during tensile test of YBCO tape with different transverse size
- Compared the result of experiment and computer simulation
- Arrived at a conclusion that the curvature will rise as the longitudinal strain goes up and a wider tape can lead to smaller curvature

SKILLS LIST

- Program language: Matlab, Fortran
- Cell culture: seeding, passage, imaging
- Software: Auto CAD, COMSOL, Solidworks, Ansys, ImageJ