

### **CSL Composite Structures Laboratory**

### Gyeongsang National University

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- B.S., Korea Aerospace University (17)
- Ph.D., Seoul National University ('23)



- Research Associate, Imperial College London ('23)
- Visiting Scholar, University of Oxford('23)
- PI, NRF funding('21, '23, '24)
- Outstanding Doctoral Dissertation Award ('23)
- Excellent Presentation, KASAS, KSCM, CSEIK ('17, '20, '21)

### **Research Interests**

- Electro-chemo-mechanical modeling using finite element method
- Continuum-based multiscale and multiphysics mechanics and simulations
- Manufacturing simulation(composite, metal, polymer)
- CT-image based Stochastic quantification and durability assessment.
- Energy conversion device (solid-state batteries, hydrogen fuel cell)
- Machine Learning / Deep Learning Applications: CNN, UNET, GAN, DDGM

Our group combine theoretical, computational, and experimental methods to study composites.

Our primary focus is on prediction and design, with diverse applications in science and technology – from composites to energy conversion structures.

There are numerous opportunities for establishing a connection and for joining the CSL.

Inquires are always welcomed. (진로상담/진학문의는 메일 또는 부착된 QR코드로 연락주시기 바랍니다.)

# Shi et al., 2013 Zeng et al., 2014 Yang et al., 2016 Design flexibility Add functionalities (Crack, Pores) Simulate phenomenological behavior Westernal Street Composites Length [m] Westernal Monogenization Matrix with Direction During Control of Composites Length Scales

# Artificial Neural Network for Desing Problem Microstructure Reconstruction Material Design Surrogate Modeling Dimensional Latent Space Optimized structure Sample #1 Sample #2 Sample #2 Sample #3 Sample #4 Sample #3 Sample #4 Sample



















