Composites Manufacturing & Simulation Center

DAVID MIN KYUM KIM

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David Minkyum Kim is one of four members of Composites Design Studio at Purdue University. He is from South Korea and earned his Bachelor of Science degree in Aeronautical Astronautical Engineering from Purdue University. His research in his undergrad mainly focused on predicting failure and crack behavior of double cantilever beams and finding relationship between the 3D printed Carbon fiber PLA properties and the printing temperature. From his previous research experience, David built interest in composite materials which led him to join the Composites Design Studio team at Indiana Manufacturing Institute. His interests in the CDS group lay in 3D modeling and predicting composites performances and optimization using Finite Element Modeling and simulations. He looks forward to earning his M.S. and Ph.D. degree at Purdue University and continuing on his research in the composites design field.

Education

Purdue University

» MS. Aeronautical Astronautical Engineering, 2017–Present

» B.S. Aeronautical Astronautical Engineering, 2013–2016

Purdue University

Composites Design Studio,
January 2017–present

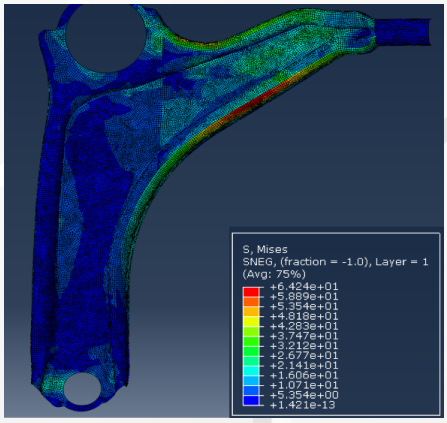
Currently working in the Composites Design Studio and working with the industry partners on projects related to the market in the automotive industry. Primarily using commercial software tools to convert steel designs to composites design. Working in design, model, and simulate manufacturing processes as well as using coding to test and analyze how composites manufacturing affect the performance and properties. Working towards predicting composite part performance using state of the software tools.

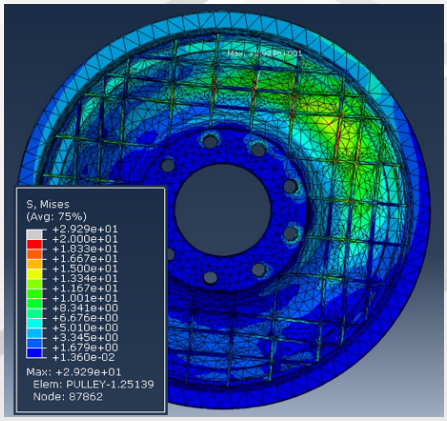
Multiphysics Research Lab,
June 2016–August 2016

Worked as a research assistant during the summer of 2016 at Multiphysics Research Lab. Printed and tested multiple samples of carbon fiber PLA using 3D printer to find different printing modes and their relationship with performance. Used infrared cameras to test behaviors of the samples when printed with different maximum and minimum temperature fields and time. Then, tensile tests were performed to check the crack load. Designed automatic responsive cycle for modifying the 3D printed samples using new infield pattern for better performance according to the previously tested by generating Gcode and MATLAB codes to make modifications.

Composite Materials Lab,
June 2015–August 2015

Worked as a graduate student research assistant during the summer of 2015 at Composite Materials Lab at Purdue University. Created carbon and glass fiber double cantilever beams for testing and analyzing crack load/mode. Possibly predicted the crack behaviors from the simulation. Polished the cracked double cantilever beam samples for microscopy analysis. Worked with Python code that simulates the testing of DCBs of different dimensions with dimension inputs.





Research Interest

» Structural testing and analysis techniques for Composite Materials

» Structural analysis simulation and modification