

# Justin Fantroy

#### justin.fantroy@slu.edu

## ADVISOR: Dr. Mark McQuilling PROGRAM START: Fall 2019

#### BIOGRAPHY

Justin's research entails an investigation into improving laboratory capabilities for turbulence data acquisition. Currently common practice is to use thermal anemometry to detect turbulence. However, complications arise when encountering high speed flows using this experimental method. Complications involve the fragile nature of these devices, as well as impediments to clear data representation as flows become more compressible at higher speeds. The goal of this research is to discover if their lab's fast-response probe is able to detect turbulence to the standard of thermal anemometry at low speeds, and potentially test the device's veracity in higher speed flows, as well. From the results of this investigation, he hopes to validate a more reliable and useful form of turbulence data acquisition.

### RESEARCH

Justin is in his fifth year of the BS-MS program studying Aerospace & Mechanical Engineering, graduating May 2022. He is also a first-generation college graduate originally from Saint Louis, MO. He has previous experience as a research assistant in the supersonic wind tunnel lab as an undergraduate student, which is the same lab in which he is conducting his master's research. Some of the things he participated in with this lab involved assisting in test section configuration, acquisition of data and data reduction using programs like AeroAcquire and MatLab. His involvement in this research lab has also given him the opportunity to assist with fluid mechanics research relating to nondimensional relationships and coauthoring a yet to be released research article for these findings. He obtained further engineering experience with an internship at Honeywell Aerospace over the summer of 2021 working with the turbine component design team. At the internship he reduced CFD and rig test data, which was presented to the process improvement team. In addition to engineering related experience, he also continues to be actively involved in the African American Male Scholars Initiative (AAMS). AAMS is a group on campus that affords Black male students the opportunity for networking and a place for conversation regarding the experiences associated with being a minority at a PWI.



#### SAINT LOUIS UNIVERSITY

PARKS COLLEGE OF ENGINEERING, AVIATION AND TECHNOLOGY