Turbulent flows affect technologies, for example by exerting drag on planes and ships and mixing heat and other scalars in combustion and the atmosphere. Fundamental questions regarding the organization of patterns in turbulence remain unanswered, which could have repercussions for modeling and control of many turbulent flows. In this project, we focus on making measurements of the interaction of large and small scales in the flow field. The project will consist of helping to take particle image velocimetry measurements of a velocity field in a wind tunnel, helping with the preliminary data analysis using Matlab, and learning about the science of turbulence.

We are looking for someone who is excited, motivated, and eager to learn about fluid dynamics and experimental work. The student will get exposure to the experimental study of fluid mechanics and turbulent boundary layers, measurement systems such as particle image velocimetry (PIV) and hotwire anemometry, and basic coding in Matlab and LabView. The student will also gain skills in thinking through research plans and presenting research outcomes.