department of aeronautics & astronautics aeroastro logo computational based design during the last two decades giant strides have been achieved in many aspects of computational aerospace engineering higher fidelity mathematical models better approximation methods and faster solution algorithms have been developed for aerodynamic structural aeroacoustic aeroelastic aerothermal and control applications among others computing speed barriers have been shattered by hardware manufacturers and parallel cluster computing has become ubiquitous as a result numerical simulation has increasingly complemented and in some cases replaced physical tests to enhance the reliability of engineering designs improve the productivity of engineers reduce design cycle time and enhance system performance the department has a strong presence in computational aerospace engineering and an innovative research program in computational based design this program which is carried out primarily in the aerospace computing laboratory the aerospace design lab and the frg focuses on multidisciplinary frameworks that can link different physics pertaining to aeronautics and astronautics multiscale computational approaches that can deal with large ranges of time and spatial scales high fidelity computational schemes that can enable predictive simulations optimization algorithms that can handle complex integrated systems and model reduction methods that can integrate computation with design 1997 2012 stanford university all rights reserved about aeroastro computational based design control and navigation space systems structural health monitoring sustainable aviation faculty faculty search research labs curriculum student research admissions & financial aid events affiliates membership giving to aa links contact us