BIOENGINEERING
Spring 2019 Seminar

Date: Thursday, February 7, 2019
Time: 12:00 pm - 1:00pm
Location: Krasnow, Room K229

Juan Cebral, Ph.D.

Biography: Dr. Juan R. Cebral is a Professor with the Departments of Bioengineering and Mechanical Engineering at George Mason University. Dr. Cebral finished his undergraduate studies in Physics at the University of Buenos Aires, Argentina and his PhD in Computational Sciences and Informatics at George Mason University. He conducts research on image-based patient-specific computational modeling of cerebral blood flow and aneurysms in close collaboration with clinicians from Inova Fairfax Hospital and other institutions in the USA and around the world. He is a member of the Center for Computational Fluid Dynamics of the College of Sciences at GMU. He has co-authored over 110 journal papers, 10 book chapters, and over 200 conference papers. His research has been funded by the National Institutes of Health, the American Heart Association, the Whitaker Foundation as well as industrial partners such as Philips Healthcare and Boston Scientific. He teaches courses in Fluid Mechanics, Biofluids, Continuum Biomechanics, High Performance Computing and Computational Methods.

Title: Patient-Specific Models of Cerebral Aneurysms to Assess Rupture Risk, Understand Mechanisms and Evaluate Devices and Procedures?

Abstract: Cerebral aneurysms are the most common cause of hemorrhagic stroke and their rupture have devastating consequences. Understanding the mechanisms responsible for the progression and rupture of intracranial aneurysms and identifying high risk and low risk aneurysms is important for improving patient selection for treatment as well as optimizing procedures and devices. In this talk I will summarize our research on cerebral aneurysms using an image-based patient-specific computational modeling approach. In particular, I will describe the recent development and validation of statistical models of aneurysm rupture probability, the combination data from diverse sources to understand the underlying mechanisms of aneurysm disease, and the modeling of endovascular procedures to understand the effects and failure modes of different flow diverting devices.