

## Perspectives on the Development and Application of Worst-Case Analysis Tools

**Prathyush P Menon,  
Senior Lecturer,  
College of Engineering, Mathematics and Physical Sciences,  
University of Exeter, Exeter, United Kingdom. EX4 4QF**

**Abstract:** It is well known that the vast majority of the budget for any prototype control system design is spent in analysis and validation. Particular interest is in assessing the robust performance of complex realistic, industrial-standard controllers for different prototypes, mainly in the area of aerospace applications using legacy controllers and engineering simulator of different fidelity from industry. This talk will describe some of the developments in, and applications of, worst case analysis tools; assess its capabilities and identify certain areas for future research.



**Bio-Sketch:** Dr. Prathyush Menon was awarded a PhD in Control Engineering from Leicester University in 2007. He is currently a Senior Lecturer at the University of Exeter, UK. His research interests are broadly in the areas of optimization, robust and nonlinear control and observation theory, and their application to aerospace systems.

Much of his early research focused on worst-case analysis, where he has contributed to the development of worst case analysis tools for European Space Agency and also use of the methods in various applications. Over the past 6 years, he has gained significant experience in the development of simulation and optimization based tools for validation and verification of advanced control systems for space applications, via a number of ESA funded projects led by many different industrial consortia.

More recently, he has been focusing to enhance the technology readiness level of the use of multiple autonomous vehicles cooperatively controlled for environmental and oceanic feature sampling and monitoring, together with the leading manufactures of such systems. Dr. Menon is the author of over 50 refereed papers (25 papers in journals) and five book chapters.