

## Dedication

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There is a fine old European tradition that upon the retirement of a distinguished professor, his colleagues create and dedicate a book to him to commemorate the event. It is in this spirit that this issue of Journal of Optimization Theory and Applications (JOTA) is dedicated to Professor David G. Hull and Professor George Leitmann, whose pioneering work into optimization theory and its application to aerospace problems has been an inspiration to many researchers. This dedicated issue is a reflection of their intellectual influence on the field in terms of depth and breath. Professors Hull's and Leitmann's professional careers span the dawn and maturing of the aerospace age. Their scholarly works are characterized by a mathematical sophistication reduced to a practical simplicity leading to applications that are eloquent in their insights and at times counterintuitive. Professor Hull developed the parametric approach to the solution of optimal control problems, which allowed the application of high-performance parameter minimization codes. He applied deterministic optimal control theory to a host of aerospace applications ranging from launch vehicles, atmospheric orbital plane change, and optimal descent paths for maneuvering reentry vehicles to guidance and navigation techniques for homing missiles. This issue is in particular dedicated to Professor Hull for his nine years of invaluable service for his role as Editor-in-Chief of the Journal of Optimization Theory and Applications. Professor Leitmann's geometrical approach to optimal control theory introduced an elegant perspective in understanding classical ideas in Hamilton-Jacobi theory. Added to this are his focus on research in dynamical game theory and robust control that is the precursor to modern robust control methodology. With these important ideas in mind, this special issue is divided into the specific technologies:

 (a) Estimation, optimization, and control of deterministic and stochastic systems (papers by Morelli, Twito et al., Carpenter and Markley, and Servadio and Zanetti);

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- (b) Optimal space trajectories using impulsive and low thrust (papers by Mazzini, Singh et al., Pontani, and Ivanyukhin and Petukhov);
- (c) Numerical methods for trajectory optimization (papers by Eide et al. and Ottesen and Russell);
- (d) The theory of differential games and its application to guidance systems (papers by Garcia et al. and Oliveira et al.);
- (e) New guidance methodologies and system robustness (papers by Vijayan et al., Thomas et al., Celani and Bruni, Parvathi and Jacob, and Mathavaraj and Padhi);
- (f) Decentralized optimal control and guidance of clusters and swarms of air vehicles and spacecraft (papers by Monmousseau, Khamvilai et al., Kielas-Jensen et al., and Sharifi and Damaren).

To complete this dedication, a word is given to those who greatly influenced Professor David G. Hull and Professor George Leitmann. The founding Editor of JOTA was Professor Angelo Miele, who early in his career published "General Variational Theory of the Flight Paths of Rocket-Powered Aircraft, Missiles and Satellite Carriers" (*Astronautica Acta* 4(4), January 1958). This paper represents the significant influence of Professor Placido Cicala's approach to the calculus of variations had on Professor Miele. Consequentially, Professor Hull was significantly influenced by Professor Miele, as his student. Although Professor Leitmann was educated as a physicist, his interest in the optimization of rocket flight motivated his study of the work of Constantin Carathéodory. Interestingly, Professor Miele and Professor Leitmann are contemporaries, each referencing each other's early work. This special issue of JOTA represents the continuation of the evolving process in the study of optimal control that has so well been bridged by Professor David G. Hull and Professor George Leitmann.

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