

22nd Simon Stevin Lecture on Optimization in Engineering

Wednesday, February 08, 2012, 4:00pm – 5:30pm

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Algorithmic Choices when Solving an Optimal Control Problem

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Abstract

When designing a computational algorithm for solving an optimal control problem there are often many alternatives. Is it better to use an indirect or direct formulation? Is an interior point algorithm better than a sequential quadratic programming approach? This talk will discuss the many choices that must be made when constructing an algorithm that is robust, efficient, and accurate.

Biographical Information

John T. Betts received a B.A. degree from Grinnell College in 1965 with a major in physics and minor in mathematics. He attended graduate school at Purdue University and received an M.S. in Astronautics with a major

in orbit mechanics in 1967. He received a Ph.D. in aeronautical engineering from Purdue in 1970, specializing in optimal control theory. He joined The Aerospace Corporation in 1970 as a Member of the Technical Staff, and from 1977 to 1987 he was manager of the Optimization Techniques Section of the Performance Analysis Department. He joined the Boeing Company, serving as manager of the Operations Research Group of Boeing Computer Services from 1987 to 1989. He served as a Technical Fellow in the Mathematics and Computing Technology Division, until his retirement in 2009, during which time he provided technical support to all areas of the Boeing Company.

Dr. Betts is a member of AIAA and SIAM with active research in nonlinear programming and optimal control theory. In 2004, he was granted an “outstanding aerospace engineer award” by Purdue University and in 2011 was named a SIAM fellow. He has over 50 technical publications, and is the author of two books on optimal control methods.

About the Lecture Series

The "Simon Stevin Lecture Series on Optimization in Engineering" is set up in order to promote optimization in engineering. For this aim, every quarter of the year an outstanding international scholar is invited to report on latest progress in the development of optimization algorithms and their applications in engineering.

Simon Stevin (1548-1620) was a Flemish mathematician and engineer. Among other, he helped to advance the use of decimal fractions, was the first to explain the tides by the attraction of the moon, and discovered the hydrostatic paradox. He made numerous inventions, among them a wind propelled carriage with sails, the "land-yacht", which once impressed Prince Maurice of Orange as it moved faster than horses, in around 1600 on the beach between Scheveningen and Petten. Simon Stevin was fond of promoting the use of science in daily life and in craftsmanship, and translated various mathematical terms into Dutch. Among other, he introduced the Dutch word for mathematics, "wiskunde".

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Program

16:00 *The lecture given by Professor **John Betts***

17:30 *Reception in the hall of Department of Computer Science.*