# **Optimal Control Problems**

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# Outline

Introduction

Examples

#### Literature

Books:

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Liberzon [Lib12] (online preview and free preliminary PDF copy are
available here
http://liberzon.csl.illinois.edu/publications.html
(accessed June 20, 2019)),
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Macki and Strauss [MS82],

Betts [Bet10], classic text by Bryson and Ho [BH75], Gerdts [Ger12].

- Articles that focus in the history of optimal control: [PB94], [PP09], [PP12], [Sar00], [SW97].
- Software: Pyomo [HLW+17] Pyomo.DAE [NSW+18]

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**Examples** 

# **Examples**

#### Additional examples can be found e.g., in

- ▶ Betts' book [Bet10],
- ▶ the example section of the GPOPS-II web-page http://www.gpops2.com (accessed June 20, 2019),
- ▶ Vanderbei's article [Van01],
- ▶ the Pyomo.DAE [NSW+18] example folder https: //github.com/Pyomo/pyomo/tree/master/examples/dae (accessed June 20, 2019),
- ▶ and the books by Seierstad and Sydsæter [St87], Sethi [Set19], Weber [Web11] with focus on economic applications.

#### Literature 1

[Bet10] J. T. Betts.

Practical methods for optimal control and estimation using nonlinear programming, volume 19 of Advances in Design and Control.

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[HLW+17] W. E. Hart, C. D. Laird, J.-P. Watson, D. L. Woodruff, G. A. Hackebeil, B. L. Nicholson, and J. D. Siirola.

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#### Literature II

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Pyomo.DAE: a modeling and automatic discretization framework for optimization with differential and algebraic equations.

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[PP12] H. J. Pesch and M. Plail.

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### Literature IV

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