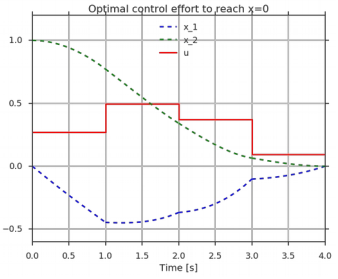
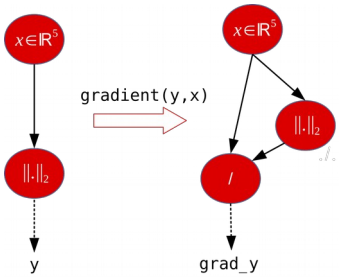
CasADi *master class*

16-18 March 2020 – Leuven, Belgium



Target audience Academic/industrial CasADi users that want to get a deeper understanding of CasADi, in order to speed up existing applications or create advanced implementations. Unlike the November hands-on course, there is no focus on mathematics.

CasADi? Originating from KU Leuven's "*Optimization in Engineering Center*" under guidance of prof. Moritz Diehl, CasADi [1, http://casadi.org] is an open-source software framework for nonlinear optimization and algorithmic differentiation. It facilitates rapid - yet efficient - implementation of different methods for numerical optimal control, both in an offline context and for nonlinear model predictive control.



Format Seminars paired with computer exercises. The seminars provide a view on advanced CasADi techniques. The computer exercises aim to internalize these techniques, and leave the participants well-equipped to apply them on their own applications.

Covered topics SX and MX expression graphs - benchmarking and debugging - thread-safety and parallelisation - code generation API and C API - interfacing an NLP solver to CasADi - memory/speed trade-offs and algorithmic differentiation

Prerequisites Basic programming skills are assumed. Exercises will build upon boilerplate codes in Python/Matlab, C and C++. Familiarity with CasADi is assumed.

Tutor Joris Gillis obtained his PhD in electrical engineering at KU Leuven in 2015. Currently a post-doc at MECO, KU Leuven and part-time freelancer, he pursues large-scale applications in optimal control and is highly active as a main developer of CasADi since 2010.

Practicalities The course will take place at the Park Inn hotel, Martelarenlaan 36, 3010 Leuven, Belgium, starting each day at 9:00 and ending on 18:00. The registration fee amounts to 750 EUR excl. VAT (450 EUR for PhD students). This includes lunches and a social dinner on Tuesday. Lodging is not included.
Participants are required to bring their own laptops (Linux/Windows/Mac). A working installation of either Matlab or Python is needed, as well as a C compiler, and either Virtualbox or VMware Workstation Player.

Registration Register before March 1, 2020, at http://master2020.casadi.org/ – the event is limited to 30 participants.

Organizer Joris Gillis, joris@yacoda.com, +32496432937

[1] Joel A. E. Andersson, Joris Gillis, Greg Horn, James B. Rawlings, M. Diehl, "*CasADi – A software framework for nonlinear optimization and optimal control*," Mathematical Programming Computation, 2018.

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