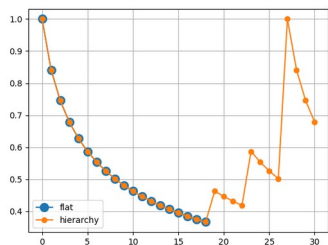
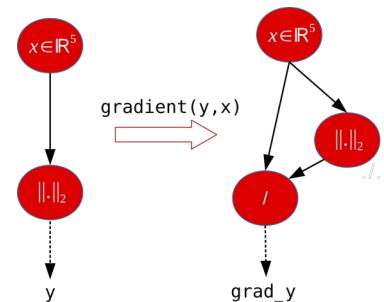


CasADi master class

March 18-20, 2024 – Leuven, Belgium

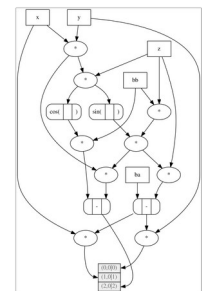
Target audience Academic/industrial CasADi users that want to get a deeper understanding of CasADi, in order to speed up existing applications or create advanced implementations. Unlike the November hands-on course, there is no focus on mathematics.

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 active 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 at 18:00. 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 (gcc/clang/msvc).

Registration Register before February 25, 2024, at <http://master2024.casadi.org> – the event is limited to 20 participants. Early bird discount applies until January 28.

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.