

CityUHK Distinguished Visiting Professor Seminar

The Convex-Concave Procedure

Abstract

We describe an extension of convex optimization in which the objective and constraints are the difference of convex functions (i.e., the sum of a convex and concave function). Such problems arise in many different applications, and include hard problems, so we do not expect a fast global solution method. Instead we describe a well known simple heuristic for approximately solving such problems based on linearizing the concave functions and solving a sequence of convex optimization problems. The method has been implemented in CVXPY, a python-embedded domain specific language for convex optimization. This talk assumes some familiarity with convex optimization and CVXPY.



20 May 2025 (Tue)



3:00pm - 4:30pm

LT-2 Mr and Mrs Sze Chi Ching
Lecture Theatre, YEUNG

Conducted in English

About the Speaker

Prof. Stephen P. BOYD currently is the Samsung Professor of Engineering, Professor of Electrical Engineering, and a member of the Institute for Computational and Mathematical Engineering at Stanford University. He is a Fellow of the IEEE, SIAM, INFORMS, and IFAC, a Distinguished Lecturer of the IEEE Control Systems Society, a member of the US National Academy of Engineering, a foreign member of the Chinese Academy of Engineering, and a foreign member of the National Academy of Engineering of Korea.

Prof. Boyd's current research focus is on convex optimization applications in control, signal processing, machine learning, and finance. His group has produced many open-source tools, including CVX (with Michael GRANT), CVXPY (with Steven DIAMOND), Convex.jl (with Madeleine UDELL and others), and CVXR (with Anqi FU and A. NARASIMHAN), widely used parser-solvers for convex optimization. His group's CVXGEN software is used in many applications, including the SpaceX Falcon 9 landing system.



Speaker

Prof. Stephen P. BOYDSamsung Professor in the School
of Engineering
Stanford University

All Are Welcome!

Enquiry: 3442 7751 | wywon23@cityu.edu.hk