



“Closing the Gap in Power Network Optimization”

A seminar with Dr. Carleton Coffrin of NICTA

Room 135, Engineering Building, UCD Belfield

Monday 7th September, 13:00 to 14:00

Abstract: This talk presents recent work on the seminal power network optimization task, Optimal Power Flow (OPF), a non-convex nonlinear optimization problem that was first described in 1962. By combining insights from three distinct optimization communities, nonlinear programming (NLP), convex optimization (SDP, SOCP), and constraint programming (CP), this talk will demonstrate that the OPF problem can be solved to near optimality in seconds. This result has significant implications in a wide variety of power network optimization tasks and suggests that real-time optimization of applications requiring AC power flows are more viable than previously thought.

Bio: Dr. Carleton Coffrin (www.coffrin.in) is currently as a staff researcher down under at Australia’s premier computer science research laboratory, NICTA. As a member of NICTA's Optimisation Research Group, Dr. Coffrin investigates how state-of-the-art optimization methods can benefit power system applications. Dr. Coffrin has developed a speciality in network design applications for steady-state AC power flows (e.g. AC-OPF, AC-OTS, AC-TNEP, bulk power system restoration), as well as computationally efficient approximations and relaxations of the AC power flow equations. Dr. Coffrin’s work on AC-OPF optimization was selected as one of five finalists in the PES 2014 Competition for Solving Optimal Power Flow Problems. Before joining NICTA in 2012, Carleton conducted his Ph.D. studies at Brown University and Los Alamos National Laboratory in the area of hybrid optimization for disaster management, under the supervision of Pascal Van Hentenryck (Brown) and Russell Bent (LANL).

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