RMIT Optimisation Group

Meetings

Semidefinite descriptions of regular polygons (and beyond)

SPEAKER: Dr James Saunderson
Monash University

Date: Tuesday, 15th November 2016.

Time: 11:00am-12:00pm. (Talk & Q/A).

Venue: Building 08, Level 09, Room 66 (AGR Room), RMIT City campus.

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All students and staff are welcome

ABSTRACT: Semidefinite programs are a family of convex optimization problems that generalize linear programs and can model a wide range of problems from areas as diverse as statistics, robotics, and combinatorial optimization. Despite this, understanding the expressive power and limitations of (small) semidefinite programs remains a significant challenge.

This talk is centered on new efficient descriptions of regular polygons (and related polytopes) in terms of the feasible regions of semidefinite programs. These constructions, for instance, give the first known family of polytopes with semidefinite programming descriptions that are asymptotically smaller than the best linear programming descriptions.

Based on joint work with Hamza Fawzi (Cambridge) and Pablo Parrilo (MIT).

BIO: James Saunderson is a Lecturer in the Department of Electrical and Computer Systems Engineering at Monash. He obtained a PhD in Electrical Engineering and Computer Science from MIT in June 2015. Before joining Monash he was a postdoc in Electrical Engineering jointly at Caltech and the University of Washington.