Optimisation in Multiple View Geometry: The L-infinity Way (Welcoming address)

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CVPR 2018 Tutorial

Welcome!

State of the art in geometric vision

COLMAP



ORB-SLAM



LSD-SLAM



Tat-Jun Chin (The University of Adelaide) Optimisation in Multiple View Geometry

Optimisation libraries

Ceres

SBA

g2o

Many others (multicore, GPU acceleration, etc.).

So what are we doing here?

Initial structure and camera positions



L-infinity solution



L-infinity solution (with outlier detection and removal)



Bundle adjustment (Huber norm)



Poorer initialisation



A. Eriksson, C. Olsson, F. Kahl, T.-J. Chin. Strong duality in rotation averaging. CVPR 2018 (oral presentation).
Q. Zhang, T.-J. Chin, H. Le. A fast resection-intersection method for the known rotation problem. CVPR 2018.

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Bundle adjustment (Huber norm, poorer initialisation)



Common perceptions about L-infinity

"L-infinity optimisation is easily biased by outliers."

"You need bundle adjustment to estimate the rotations anyway."

"L-infinity optimisation is mainly a theoretical interest."

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Optimization Methods in Geometric Vision

Organisers	Tat-Jun Chin, Anders Eriksson, Yasuyuki Matsushita
Dates	28-31 January 2019
Location	Shonan Village Center (70km from Tokyo)
Meeting format	Dagstuhl style
Costs	No registration costs, accom. with catering available
Leisure	Guided excursions

