YUWEN CHEN

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EDUCATION

University of Oxford Oct. 2020 - Current
DPhil Candidate in Engineering Science
Research on Numerical Algorithms for Conic Optimization

ETH, Zurich Sept. 2017 - Apr. 2020
M.S. in Electrical Engineering and Information Technology
Overall GPA: 5.73/6

Shanghai Jiao Tong University Sept. 2013 - Jul. 2017
B.S. in Electric Power Engineering and Automation
Overall GPA: 90/100

ONGING RESEARCH WORK

Interior Point Solver for Conic Optimization Jan. 2022 - Current
supervised by Prof. Paul Goulart, University of Oxford

Building up an interior point solver in Julia with faster performance for problems with quadratic objectives compared with the state-of-art numerical solvers.
Supporting LP, QP, SDP, SOCP, exponential cones, power cones.

Solver link: `https://github.com/oxfordcontrol/Clarabel.jl`.

Scalable Semidefinite Programming (SDP) Feb. 2021 - Sept. 2022
supervised by Prof. Paul Goulart, University of Oxford

· Having proposed a Burer-Monteiro ADMM for diagonally-constrained SDPs with provable 1st-order global convergence and current experiments showed it is faster than the state-of-art algorithms on high dimensional SDPs.

(Future Work) Incoming journal submission for the extension to Stiefel manifolds.

ADMM in Mixed Integer Conic Programming Oct. 2020 - Aug. 2021
supervised by Prof. Paul Goulart, University of Oxford

· Proposed an ADMM-based early termination technique for Mixed Integer Programming with provable feasibility, shortened the time for computation

PREVIOUS RESEARCH WORK

Derivative-free adaptive methods Sept. 2019 - Mar. 2020
Master Thesis, supervised by Dr. Aurelien Lucchi and Prof. Thomas Hofmann
Data Analytic Laboratory, ETH

· Combined various variance-reduction frameworks with gradient-free algorithm method and proved a faster convergence rate for the proposed variance-reduction+momentum+gradient-free algorithm on finite-sum convex functions and extended it to nonconvex functions

Distributed zeroth-order algorithm in stochastic game Feb. 2019 - Aug. 2019
Semester Project, supervised by Dr. Suli Zou and Prof. John Lygeros
Automatic Control Laboratory, ETH

· Extended an existing gradient-free algorithm to the Generalized Nash Equilibrium model and proved the convergence of it

Learning Trajectory Optimizer for Quadrotor's Camera Motion Mar. 2018 - Jun. 2018
Semester Project, supervised by Mr. Christoph Gebhardt and Prof. Otmar Hilliges
Advanced Interactive Technologies Lab, ETH

· Applied the Gaussian Process method to learn weights of trajectory optimizer of the quadrotor's camera

LLC Converter Feb. 2017 - Jun. 2017
Bachelor thesis, supervised by Prof. Rui Li
State Energy Offshore Wind Electricity and Equipment R&D Center, SJTU

· Modelled of the LLC converter and designed the control scheme for the converter

PUBLICATIONS

· *Burer-Monteiro ADMM for Large-Scale Diagonally Constrained SDPs*, *arXiv*
· *An Early Termination Technique for ADMM in Mixed Integer Conic Programming*, 20th European Control Conference, ECC 2022
· *Burer-Monteiro ADMM for Large-Scale Diagonally Constrained SDPs*, 20th European Control Conference, ECC 2022
· *An Accelerated DFO Algorithm for Finite-sum Convex Functions*, 37th International Conference on Machine Learning, ICML 2020
· *Game Theoretic Stochastic Energy Coordination under A Distributed Zeroth-order Algorithm*, 21st IFAC World Congress, 2020

WORKING EXPERIENCE

Power Electronics Engineer Nov. 2016 - Apr. 2017
Internship, supervised by Carlton Zhang *Signify (Philips Lighting), Shanghai*

· Modelled parasitic parameters of the Flyback Converter and applied small-signal analysis for the converter
· Summarizing the modelling of the converter into a technical report

HONOURS & AWARDS

· Clarendon Scholarship, University of Oxford 2020
· Outstanding undergraduate of Shanghai Jiao Tong University 2017
· Academic Excellence Scholarship of Shanghai Jiao Tong University 2016
· Academic Excellence Scholarship of Shanghai Jiao Tong University 2015
· Academic Excellence Scholarship of Shanghai Jiao Tong University 2014
· First Class Prize of East China University-level Intelligent Car Race 2015

RELATED SKILLS & BACKGROUND

Academic background	Convex Analysis, Nonlinear Programming, Distributed optimization, Linear System Theory, Model Predictive Control, Machine Learning, Game Theory
Computer Languages	Julia, Matlab, Python, C, Latex