Chenxuanyin Zou

zcxy0218@gmail.com · (+86) 188-4248-8849 · Homepage

Education

Northeastern University (985), China, Shenyang — Sep. 2016 – Jun. 2020

B.S. in Automation - top 5 (Lang shijun's Automation Experimental Class–the best class) GPA: 3.85/5.0

Northeastern University (985), China, Shenyang — Sep. 2020 – present

State Key Laboratory of Synthetical Automation for Process Industries
Master student in Control Theory and Control Engineering - comprehensive ranking 1/31
Supervisor: Jun Fu (Cheungkong Scholar, post-doctoral of MIT)

Awards and Scholarships

Third-class Scholarship,	Undergraduate Scholarship of NEU (30%)	2016-2019
Second-class Scholarship,	Undergraduate Scholarship of NEU (10%)	2019-2020
First-class Scholarship,	Graduate Scholarship of NEU (40%)	2020-2023
Suzhou Industrial Park Scholarship,	Enterprise Scholarship (1/31)	2022-2023
Meritorious Winner,	MCM/ICM (13%)	2019-2020

Publications

1. *Jun Fu, **Chenxuanyin Zou**, Mingsheng Zhang, Xinglong Lu, and Yuzhe Li*,
   Multiobjective dynamic optimization of nonlinear systems With path constraints.
   IEEE Transactions on Systems, Man, and Cybernetics: Systems
   DOI: 10.1109/TSMC.2022.3201685
2. *Jun Fu, **Chenxuanyin Zou***
   An alternated direction sequential quadratic method for constrained multiobjective optimization.
   preparing for *Mathematical Programming*

Academic Experience

MCM/ICM – *Meritorious Winner* — 2018 – 2019

Problem: Design an escape plan for Louvre Museum for terrorist attacks.

- Utilize the charging and discharging process of capacitance to approximate the process of people entering and leaving the rooms, design a charged circuit according to the building structure of the Louvre Museum, then discharge it. The best escape plan is the path through which electrons move in the circuit.

Research in the State Key Laboratory — 2019 – 2023

- Integrate the heuristic algorithms and deterministic algorithms to adopt their advantages.
- Integrate the multiobjective optimization algorithms and the path constraints handling technique to solve the optimal control problems of nonlinear dynamic systems.
- Propose an alternated direction method for constrained multiobjective optimization problems.

Internship and Hand-on Experience — 2018 – 2021

- China Baowu Steel Group Corporation Limited & SIASUN Robot & Automation CO., LTD
- Quancer experimental equipment with MATLAB (Eg. coupled tank, inverted pendulum, etc.)
- Control of an experimental blowing machine with PLC (ABB).

Academic Material Writing Experience — 2021 – 2022

For supervisor

- First Prize of Natural Science Award of the Ministry of Education
- The nomination form for IEEE Fellow

Main Research Field

1. **Multiobjective optimization**: Propose an efficient Newton-type multi-objective algorithm with quadratic convergence for constrained problems.
2. **Semi-infinite programming**: construct an infinite-constraint approximation of the semi-infinite problem and iterate the parameters in the problem such that it converges to a sub-optimal solution.
3. **Optimal control**: apply the semi-infinite programming algorithm to optimal control and integrate it with multiobjective optimization problems to control the Fed-batch bioreactor and Lysine Fermentation.

Related Courses

- Numerical analysis(97), Fundamental of modern control theory(95), Process control systems(95), Introduction to modern robust control(100), Optimal control(96), Modern control systems I-II (I-95, II-93), Design of computer control systems for industrial processes(92), Data-driven intelligent modeling methods(89), Linear and non-linear control systems, and Fundamental of Artificial Intelligence(87), etc.

Others

- Fabrication of welding circuit board - made a voice controlled vehicle (Altium Designer, Multsim, etc.)
- Video production - made a 3-minute introductory video (Adobe Premiere Pro)
- Driving skills - got the driver's license since 2016.