

Yu Cao

404-906-1837 · ycao98@gatech.edu

EDUCATION

Georgia Institute of Technology, Atlanta GA	Aug. 2014 – Nov. 2020
Sixth year PhD of Industrial Engineering , specialization in Supply Chain Engineering	GPA 3.85/4.0
Master's degree of Computational Science and Engineering	GPA 4.00/4.0
Fudan University, Shanghai, China	Sep. 2009 – Jun. 2014
Bachelor's degree of Science in Physics (Rank Top 3%)	GPA 3.72/4.0

WORKING & RESEARCH EXPERIENCE

Center for Operations Research in Medicine and Healthcare , Georgia Tech	Aug. 2014 – now
<i>Graduate Research Assistant</i>	<i>Atlanta, GA</i>

Cancer Treatment Planning Optimization for SBRT (CyberKnife System, collaborated with Accuray, on real patient data)

- Designed an efficient optimization system to solve radiation therapy treatment planning optimization problems.
- Worked with their software team to get patient data (CT image) correctly input into our system.
- Visualized and analyzed the output plan to get insight how to improve our system.
- Wrote reusable models for different patient type using our AMPL-like modeling language.
- Collaborated with other PhD students and Accaray Physicians to further improve treatment plan (algorithm design).
- Made report for internal record and provide to sponsor (Accuray).
- Maintained weekly report to my advisor and sponsor.
- Run Cplex on Unix Cluster daily.

Cancer Treatment Planning Optimization for HDR Cervical Cancer

- Proposed an efficient PET-image guided **optimization** method to achieve high quality treatment plans.
- Established a prediction model to predict the toxicity of treatment plans based on new patient's biological information.

<i>ISyE 6201 Manufacturing Systems, Georgia Tech</i>	Spring 2020
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Graduate Teaching Assistant

<i>CS 7641 Machine Learning, Georgia Tech</i>	Fall 2017
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Graduate Teaching Assistant

Atlanta, GA

PROFESSIONAL SKILLS

Programming Languages

Python, C++, MATLAB, SQL, PyTorch

Machine Learning/Deep Learning

Numpy, Pandas, Scikit-learn, Keras, TensorFlow

Optimization Modeling

AMPL, CPLEX, Linux (on server), MPI

COURSES & BACKGROUND

Operations Research

Linear/Integer **Optimization, Simulation**, Stochastic Processes

Supply Chain/System Engineering

Logistics/Warehousing/Production & Service System Engineering

Financial Knowledge

Economic Decision Analysis, Introduction to Microeconomics

Computer Science

Computer Vision, Parallel Computing, Algorithms/Heuristics

Modeling

Machine Learning, Operations Research Models,

Stochastic/Probabilistic Models, Queuing Models

SELECTED PUBLICATION

1. Lee, E. K., Yuan, F., Yu, C., Templeton, A., Yao, R., Kiel, K. D., & Chu, J. C. H. (2017). *Optimizing Tumor Control Probability in Radiation Therapy Treatment Design—Application to HDR Cervical Cancer*. *International Journal of Radiation Oncology• Biology• Physics*, 99(2), E604.

2. Lee, E., Cao, Y., Templeton, A., Yao, R., Kiel, K., & Chu, J. C. (2018). *A Predictive Model for Tumor Control Probability for Brachytherapy*. *Brachytherapy*, 17(4), S17-S18.

3. Lee, E., Cao, Y. "A Direct-Aperture-Optimization Based Optimization Framework for SBRT" ready-to-submit