

## SMC eNewsletter's Student Corner Column (Sept 2024 Issue)

Chun Sing Lai

In this issue of the Student Corner Column, we interview Yuqi Tang, co-author of the paper “Collaborative Optimization of Learning Team Formation Based on Multidimensional Characteristics and Constraints Modeling: A Team Leader-Centered Approach via E-CARGO” published in the IEEE Transactions on Computational Social Systems (Vol. 11, No. 1, Feb 2024).

1. Please tell us a bit about your background and your research area.

*I'm Yuqi Tang. I received the B.S. degree in information management and information system from the Hunan University of Chinese Medicine, China, in 2021 and a M.S. degree in software engineering from Hunan Normal University, China, in 2024. In the past two years, under the guidance of my supervisor, Professor Hua Ma, I have participated in the research work related to smart education and personalized learning. Our research results are published in journals such as IEEE Transactions on Computational Social Systems, IEEE Transactions on Learning Technologies, IEEE Systems, Man and Cybernetics Magazine, and the proceedings of IEEE CSCWD International Conference.*

2. How did you become interested in your field?

*Due to the COVID-19, e-learning has been widely adopted worldwide since 2020. How to provide personalized learning tutoring for learners to improve the learning quality and learning efficiency of learners is a research hotspot. My supervisor, Prof. Hua Ma, has been focusing on research related to smart education and learning in recent years with the support of the National Natural Science Foundation of China. I started my master's program in 2021, and I was very honored to join my supervisor's research team, focusing on the recommendation of personalized learning resources and the optimization of the leader-centered learning team formation.*

3. What motivated you to join the IEEE SMC Society?

*The IEEE SMC Society provides me with a wealth of learning resources and opportunities for academic exchange. In the course of my research, I have been guided by some teachers from the IEEE SMC Society, including Prof. Haibin Zhu and Prof. Hua Ma. Under their guidance, I began to get in touch with and understand the IEEE SMC Society. In the course of my research work, I have also read a lot of academic materials from the IEEE SMC Society. They helped me a lot and slowly led me to the idea of joining the IEEE SMC Society.*

4. What motivated you to publish in the IEEE Transactions on Computational Social Systems?

*Two years ago, our team was exploring a new paradigm of learning team formation with the group leader as the core. The E-CARGO model and RBC theory proposed by Prof. Haibin Zhu provides us with a new idea. I read and cited Prof. Zhu's papers published in IEEE Transactions on Computational Social Systems and other journals.*

*IEEE Transactions on Computational Social Systems focuses topics as modeling, simulation, analysis and understanding of social systems from the quantitative and computational perspective. The article we did about the collaborative optimization of learning team formation just matched it, so we chose to contribute it.*

5. What is the main innovation in your paper titled “Collaborative Optimization of Learning Team Formation Based on Multidimensional Characteristics and Constraints Modeling: A Team Leader-Centered Approach via E-CARGO” and its importance to IEEE Transactions on Computational Social Systems?

*There are three main contributions to this article. First, to ensure the optimum learning outcome of collaborative learning, a refined model consisting of five-dimensional characteristics and three types of constraints is used to evaluate the comprehensive abilities of learners as individuals and the interaction effect of learners as team members. Second, based on the refined learner model, we designed an assessment mechanism to measure the comprehensive abilities of learners, identify the ideal team leaders and select the members for a team. Third, by innovatively introducing the RBC theory and E CARGO model, the leader-centered learning team formation problem is firstly formulated as a collaborative optimization problem. The common mathematical model and constraints definitions are established. I think its importance to TCSS authors is that it can provide a new research paradigm for learning team formation and a new research reference of application case based on E-CARGO model and RBC theory.*

6. Where would you see yourself in 5-years’ time career wise?

*The experience of graduate school gave me a preliminary understanding of scientific research. Under the guidance of my supervisor, I have systematically participated in the research work of many topics related to smart education and personalized learning, and have also completed many academic papers. Currently, I am working in the information center of a university. One of my tasks is to promote the digitalization and intelligence of education. In the future, I will also combine the characteristics of my work and carry out follow-up research along the research direction guided by my supervisor. I also hope to contribute to the development of the IEEE SMC Society and IEEE Transactions on Computational Social Systems.*

### **Biography:**



Yuqi Tang received the B.S. degree in information management and information system from the Hunan University of Chinese Medicine, China, in 2021 and a M.S. degree in software engineering from Hunan Normal University, China, in 2024. Her research interests focus on smart education and personalized learning. She has participated in a number of research projects during her graduate studies, and her papers have been published in journals such as IEEE Transactions on Computational Social Systems, IEEE Transactions on Learning Technologies, IEEE Systems, Man and Cybernetics

Magazine, Journal of Intelligent & Fuzzy Systems, and the IEEE CSCWD International Conference Proceedings.