

SSE5107 Optimization Theory and Algorithms

论文展示

1 论文展示要求

每两位同学组成一个小组，每个小组将在课堂上展示来自论文列表中的一篇论文，展示完后进行问答交流，问答其他同学的提问。每个展示约20分钟，问答交流约为5分钟。

每个小组于**2021年11月28日前**发送以下信息至邮箱 (liaogch6@mail.sysu.edu.cn): (1) 小组两名成员的姓名与学号; (2) 三篇你们想展示的论文及其在列表中的编号，并分别标记你们对三篇论文的偏好，偏好最高的标为1，偏好最低的标为3 (当多个小组想展示同一篇论文时，该论文将优先分配给偏好最高的小组，若各个小组偏好相同，则优先分配给发送信息较早的小组)。逾期未发送上述信息的学生，将被随机安排组队并随机分配论文。

论文展示的时间安排预计于2021年11月29日公布。

2 奖励方案

为鼓励同学们认真展示论文、积极进行提问交流，实行以下奖励方案：

(1) 论文展示阶段。每位同学需要对所有小组的论文展示进行打分。**每周中得分最高的小组**将在论文展示考评中获得**满分**，其余小组的分数保持不变。

(2) 问答交流阶段。每个小组展示完论文后会有5分钟的问答环节，听众可向展示者进行提问。所有问答环节的**总提问次数大于或等于5次**的同学，本门课程**的最终考评加5分**。总提问次数少于5次的同学，无法获得加分。

3 论文列表

以下论文列表用于帮助同学们初步了解在各个应用场景中如何通过优化理论 (包括但不限于凸优化、非凸优化、在线优化) 来实际问题。论文的选取带有个人偏好，难以覆盖每一位同学的研究方向。感兴趣的同学，可课后调研自己研究领域优化相关的论文，以加深理解。

基于应用场景对论文进行分类：

边缘计算

- [1] X. Chen, L. Jiao, W. Li, and X. Fu. Efficient multi-user computation offloading for mobile-edge cloud computing, IEEE/ACM Transactions on Networking, vol. 24, no. 5, pp. 2795-2808, 2015.
- [2] A. Ndikumana, N. H. Tran, T. M. Ho, Z. Han, W. Saad, D. Niyato, and C. S. Hong. Joint communication, computation, caching, and control in big data multi-access edge computing, IEEE Transactions on Mobile Computing, vol. 19, no. 6, pp. 1359-1374, 2019.
- [3] K. Poularakis, J. Llorca, A. M. Tulino, I. Taylor, and L. Tassiulas. Joint service placement and

request routing in multi-cell mobile edge computing networks, IEEE INFOCOM, 2019.

云计算

- [4] Y. Jiang, M. Shahrad, D. Wentzlaff, D. H. K. Tang, and C. Joe-Wong. Burstable instances for clouds: Performance modeling, equilibrium analysis, and revenue maximization, IEEE/ACM Transactions on Networking, vol. 28, no. 6, pp. 2489-2502, 2020.
- [5] L. Gu, D. Zeng, J. Hu, H. Jin, S. Guo, and A. Y. Zomaya. Exploring Layered Container Structure for Cost Efficient Microservice Deployment, IEEE INFOCOM, 2021.

云游戏

- [6] S. Kassir S, G. de Veciana, N. Wang, X. Wang, and P. Palacharla. Joint Update Rate Adaptation in Multiplayer Cloud-Edge Gaming Services: Spatial Geometry and Performance Tradeoffs, ACM MobiHoc, 2021.

物联网

- [7] D. Niyato, M.A. Alsheikh, P. Wang, D. I. Kim, and Z. Han. Market model and optimal pricing scheme of big data and Internet of Things (IoT), IEEE ICC, 2016.
- [8] H. Zheng, K. Xiong, P. Fan, Z. Zhong, and K. B. Letaief. Minimum age-energy aware cost in wireless powered fog computing networks, IEEE ICC, 2020.

数据套餐

- [9] L. Zheng, C. Joe-Wong, M. Andrews, and M. Chiang. Optimizing data plans: Usage dynamics in mobile data networks, IEEE INFOCOM, 2018.

联邦学习

- [10] Z. Zhong, Y. Zhou, D. Wu, X. Chen, M. Chen, C. Li, and Q. Z. Sheng. P-FedAvg: parallelizing federated learning with theoretical guarantees, IEEE INFOCOM, 2021.
- [11] S. Luo, X. Chen, Q. Wu, Z. Zhou, and S. Yu. Hfel: Joint edge association and resource allocation for cost-efficient hierarchical federated edge learning, IEEE Transactions on Wireless Communications, vol. 19, no. 10, pp. 6535-6548, 2020.

区块链

- [12] C. Chen, Q. Ma, X. Chen, and J. Huang. User Distributions in Shard-based Blockchain Network: Queueing Modeling, Game Analysis, and Protocol Design, ACM MobiHoc, 2021.

隐私保护

- [13] J. Wang, Y. Gong, L. Qian, R. Jäntti, M. Pan, and Z. Han. Primary users' operational privacy preservation via data-driven optimization, IEEE GLOBECOM, 2017.

计算机网络

- [14] K. Cai, X. Liu, Yu-Zhen J. Chen, and J. C. S. Lui. An online learning approach to network appli-

cation optimization with guarantee, IEEE INFOCOM, 2018.

[15] M. Tang, L. Gao, and J. Huang. A general framework for crowdsourcing mobile communication, computation, and caching, IEEE GLOBECOM, 2017

无人机路径规划

[16] N. Cherif, W. Jaafar, H. Yanikomeroglu, and A. Yongacoglu. Disconnectivity-Aware Energy-Efficient Cargo-UAV Trajectory Planning with Minimum Handoffs, IEEE ICC, 2021.

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[17] M. Dehghan, L. Massoulie, D. Towsley, D. S. Menasché, and Y. C. Tay. A utility optimization approach to network cache design, IEEE/ACM Transactions on Networking, vol. 27, no. 3, pp. 1013-1027, 2019.

[18] K. Kamran, A. Moharrer, S. Ioannidis, and E. Yeh. Rate allocation and content placement in cache networks, IEEE INFOCOM, 2021.

共享出行

[19] Q. Lin, W. Xu, M. Chen, and X. Lin. A probabilistic approach for demand-aware ride-sharing optimization, ACM MobiHoc, 2019

平台经济

[20] J. Z. F. Pang , H. Fu, W. I. Lee, and A. Wierman. The efficiency of open access in platforms for networked cournot markets, IEEE INFOCOM, 2017.