




TAO, YU (BILL)

✉ yutao4@illinois.edu




Education

- Jan. 2021 – present  **University of Illinois Urbana-Champaign**
Ph.D. in Computer Science (expected in 2025)
Cumulative GPA: 4.0/4.0
- Sep. 2016 – July 2020  **Peking University**
B.S. in Physics.
Thesis: *Brief Studies on Gravitational Waveform of Numerical Relativity.*


Employment

- May 2022-Aug 2022  **Software Engineering Intern**, Google LLC
Manager: Chonggang Li
Designed and implemented a new feature on Google Cloud's Andromeda network engine that handles traffic shaping more efficiently.
This feature is going to be rolled out in 2022, and will be used to handle all traffic between Google Cloud users and Google API services.


Research Experience

- June 2020 - present  Department of Computer Science, University of Illinois Urbana-Champaign
Mentor: Prof. Deepak Vasishth
(In submission) Building the first NFC-based in-body communication and sensing system.
Building a novel edge computing system on ground stations for satellite imaging and sensing systems of large constellations.
(Accepted to Mobicom 2023) Designed a new traffic engineering algorithm for satellite networks
(Accepted to Sigcomm 2022) Built the hardware for the first RF backscattering tag for privacy protection against RF FMCW sensing radars.
- Oct. 2017 - Dec.2019  School of EECS, Peking University
Mentor: Prof. Kaigui Bian
Built a deep learning based algorithm to predict the network traffic in different regions which reduced the prediction error by at least 30% compared to the state-of-the-art methods at that time, leading to a publication in IEEE Networks.
Implemented a deep convolutional network based video super resolution reconstruction, which is part of a reinforcement learning based radio streaming rate auto adaption algorithm. This algorithm improved the median average by 10%, and led to a publication at IEEE INFOCOM.
- June 2019 - Sep. 2019  Department of Computer Science, University of Chicago
Mentor: Prof. Junchen Jiang
Built baseline and tested an algorithm for data-driven video streaming for deep learning video analytic applications. This project led to a submission to NSDI'20.

Research Experience (continued)



Sep. 2018 - March 2019  Department of Computer Science, University of California, Santa Barbara
Mentor: Prof. Timothy Sherwood
Expanded a first-of-its-kind domain-specific language (DSL) tool, CHARM, for computer architecture modeling and design space exploration. Improved its algorithms. The work is published at ACM JETC.

Teaching Experience






Jan. 2022 - May 2022  **Teaching Assistant**, Department of Computer Science, University of Illinois Urbana-Champaign
Course: CS 438 Communication Networks

Research Publications

Journal Articles






- 1 Cui, W., Tzimpragos, G., **Tao, Yu**, McMahan, J., Dangwal, D., Tsiskaridze, N., ... Sherwood, T. (2019). Language support for navigating architecture design in closed form. *J. Emerg. Technol. Comput. Syst.*, 16(1).  doi:10.1145/3360047
- 2 Bian, K., Gao, C., **Y. Tao**, Zhang, Y., Song, L., Dong, S., & Li, X. (2019). Learning at the edge: Smart content delivery in real world mobile social networks. *IEEE Network*, 33(4), 208–215.  doi:10.1109/MNET.2019.1800294
- 3 Tong, M., **Tao, Yu**, Zhang, Y., Bian, K., & Yan, W. (2019). Trajectory-based user encounter prediction over wireless sensor networks. *Wireless Personal Communications*, 107(4), 1933–1949.

Conference Proceedings


- 1 Shenoy, J., Liu, Z., **Tao, Bill**, Kabelac, Z., & Vasisht, D. (2022). Rf-protect: Privacy against device-free human tracking. In *Proceedings of the acm sigcomm 2022 conference* (pp. 588–600).  doi:10.1145/3544216.3544256
- 2 Zhang, Y., Zhang, Y., and **Y. Tao**, Y. W., Bian, K., Zhou, P., Song, L., & Tuo, H. (2020). Improving quality of experience by adaptive video streaming with super-resolution. In *Ieee infocom 2020 - ieee conference on computer communications* (pp. 1957–1966).  doi:10.1109/INFOCOM41043.2020.9155384
- 3 **Y. Tao**, Bian, K., Gao, C., Zhang, Y., Song, L., & Dong, S. (2019). Machine learning assisted content delivery at edge of mobile social networks. In *2019 ieee fourth international conference on data science in cyberspace (dsc)* (pp. 453–458).  doi:10.1109/DSC.2019.00075
- 4 **Y. Tao**, Zhang, Y., & Bian, K. (2019). Attentive context-aware music recommendation. In *2019 ieee fourth international conference on data science in cyberspace (dsc)* (pp. 54–61).  doi:10.1109/DSC.2019.00017
- 5 **Y. Tao**, Zhang, Y., Lin, J., & Bian, K. (2019). Addressing the conflict of negative feedback and sampling for online ad recommendation in mobile social networks. In *2019 15th international conference on mobile ad-hoc and sensor networks (msn)* (pp. 151–156).  doi:10.1109/MSN48538.2019.00039

Miscellaneous Experience


Awards and Achievements

- 2017  **Award for Academic Excellents**, Peking University.
- 2019  **Summer Research Fellowship**, University of Chicago.
-  **Merit Student**, Peking University
-  **Peking University Scholarship**, Peking University
- 2020  **Weiming Honor Degree Scholarship**, Peking University

Professional Membership

- 2020  **ACM Membership**, offered by the Association of Computing Machines (ACM)

Professional Service

- 2018-2019  Reviewer of IEEE Transactions on Vehicular Technologies