

YUNMING XIAO

2233 Tech Drive
Seely Mudd, Room 3-416
Evanston, IL 60208

✉ yunming.xiao@u.northwestern.edu
☎ +1 (773)-273-0957
🏠 yunmingxiao.github.io

RESEARCH INTEREST

Design, measurement, and implementation of networking systems which has strong performance and provides security and privacy guarantees.

EDUCATION

Ph.D., Computer Science Sep 2019 - *Present*
Northwestern University, Evanston, IL
GPA: 4.0/4.0, Advisor: *Prof. Aleksandar Kuzmanovic*

B.Eng., Computer Science and Technology Sep 2015 - Jun 2019
Beijing University of Posts and Telecommunications, Beijing, China
GPA: 3.7/4.0 (87/100), Graduated With Honors

RESEARCH EXPERIENCE

Northwestern University, USA Sep 2019 - *Present*
Research Assistant, Advisor: Prof. Aleksandar Kuzmanovic

RING: One DVPN Tool to Rule Them All

- Performed the first systematic measurement study of the decentralized VPNs focusing on the major players
- Developed a dVPN manager which simplifies the usability of dVPNs and provides security guarantees

De-Kodi and SafeKodi: Understanding the Kodi Ecosystem

- Worked on De-Kodi, a system capable of crawling large cross-sections of Kodi's decentralized ecosystem
- Developed SafeKodi system which leverages the help of Kodi users to explore the Kodi ecosystem in the wild and, in return, offers information about potentially malicious add-ons to Kodi users.
- SafeKodi has received media coverage and is used by over 16k distinct users

Understanding Proof-of-Work Mining Pools

- Explore major proof-of-work mining pools to understand their hashrate allocation policies towards different crypto-currencies with a focus on the BTC family
- Proposed a method to indirectly verify the publicly-reported hashrate by actively joining the mining pools

Tsinghua University, China Mar 2018 - Mar 2019
Research Assistant, Advisor: Prof. Wenfei Wu

RLPlacer: A Deployment Model for Distributed Rate Limiting

- Proposed a heuristic algorithm for distributed rate limiting in the data center
- Designed and implemented the prototype of rate limiter on programmable switches with P4 language

King Abudullah University of Science and Technology, KSA Jul - Oct 2018
Visiting Student, Advisor: Prof. Marco Canini

Direct Nonlinear Acceleration

- Proposed an algorithm to accelerate fixed point iterations based on vector extrapolation techniques, which can be applied to speed up the neural network training in cluster systems
- Performed measurement on large scale cluster exploring the waste of the computing resources

Transfer Learning on Traffic Classification

- Proposed a traffic classification algorithm that enables multitask traffic classification and performs well on transfer learning and one-shot learning scenarios

Study on Clustering in Evolutionary Game Theory

- Solved the fixation probability and fixation time of "death-birth" game model on a ring with a polynomial algorithm, and revealed the non-trivial role of clustering in mutant fixation

WORK EXPERIENCE

Bytedance Inc., China

Mar - Jul 2019

Infrastructure R&D Intern

- Implemented an efficient dependency solver for Cronjob and FaaS systems of Bytedance Cloud
- Implemented an alarm system with Message Queue and Kafka for Cronjob and FaaS systems
- Integrated the Cronjob and FaaS systems with the internal logging system and service billing system

PUBLICATIONS

Conference Publications

- [2] Marc Anthony Warrior, **Yunming Xiao**, Matteo Varvello, Aleksandar Kuzmanovic:
De-Kodi: Understanding the Kodi Ecosystem.
In Proceedings of The Web Conference 2020 (*WWW'20*), pp. 1171-1181.
- [1] **Yunming Xiao**, Haifeng Sun, Zirui Zhuang, Jingyu Wang, Qi Qi:
Common Knowledge Based Transfer Learning For Traffic Classification.
IEEE 43rd Conference on Local Computer Networks (*LCN'18*), Short Paper, pp. 311-314.

Journal Publications

- [2] Haifeng Sun, **Yunming Xiao**, Jing Wang, Jingyu Wang, Qi Qi, Jiaoxin Liao, Xiulei Liu:
Common Knowledge Based and One-Shot Learning Enabled Multi-Task Traffic Classification.
IEEE Access 7, 39485-39495. 2019.
- [1] **Yunming Xiao**, Bin Wu:
Close spatial arrangement of mutants favors and disfavors fixation.
PLoS Computational Biology 15(9): e1007212. 2019. / arXiv: 1811.08718.

Un-refereed & Working Papers

- [3] **Yunming Xiao**, Marc Anthony Warrior, Matteo Varvello, Aleksandar Kuzmanovic:
SafeKodi: A Research Tool at the Rescue of Kodi.
Under Review.
- [2] **Yunming Xiao**, Sarit Markovich, Aleksandar Kuzmanovic:
Understanding Proof-of-Work Mining Pools
Under Review.
- [1] Aritra Dutta, El Houcine Bergou, **Yunming Xiao**, Marco Canini, Peter Richtárik:
Direct Nonlinear Acceleration.
arXiv: 1905.11692. Under Review.

SKILLS

Programming: C/C++, Python, Golang, Java, Javascript, Shell, SQL, HTML, P4, Assembly, \LaTeX
Tools: Docker, Kubernetes, Tstat, CherryPy, Mininet, POX, PostgreSQL, QT, Git, PyTorch