

Peng Kang

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Education

The University of Texas at San Antonio

PH.D. IN COMPUTER SCIENCE

2018 - 2024 (expected)

- Dissertation: *SLO-Aware Resource Management for Edge Computing*
- Supervisor: Dr. Palden Lama

Xi'an Microelectronic Technology Institute

M.S. IN COMPUTER SCIENCE

2013 - 2016

- Thesis: *Research on high reliability embedded real-time operating system*
- Supervisor: Prof. Xubang Shen

Nanjing University of Aeronautics and Astronautics

B.S. IN ELECTRICAL ENGINEERING

2009 - 2013

Research Interests

CLOUD/EDGE COMPUTING, DISTRIBUTED SYSTEM, AND MACHINE LEARNING

Publications

CONFERENCE PUBLICATIONS

Some New Observations on SLO-aware Edge Stream Processing.

Amna Shahid, **Peng Kang**, Palden Lama, and Samee U. Khan

In *IEEE Cloud Summit* 2023.

Kneescale: Efficient Resource Scaling for Serverless Computing at the Edge.

Xue Li, **Peng Kang**, Jordan Molone, Wei Wang, and Palden Lama

In the *22nd IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*, 2022.

SLO-Aware Virtual Rebalancing for Edge Stream Processing.

Peng Kang, Palden Lama, and Samee U. Khan

In the *9th IEEE International Conference on Cloud Engineering (IC2E)*, 2021.

Robust Resource Scaling of Containerized Microservices with Probabilistic Machine Learning.

Peng Kang and Palden Lama

In the *13th IEEE/ACM International Conference on Utility and Cloud Computing (UCC)*, 2020.

JOURNAL PUBLICATIONS

Multicore embedded real-time scheduling algorithm based on gang scheduling.

Peng Kang, Congxiu Liu, and Xubang Shen

Microelectronics and Computer, 2016.

UNDER REVIEW AND IN PREPARATION

Adaptive Performance Modeling for Edge Stream Processing System.

Peng Kang, Faiza Akram, Palden Lama, Samee U. Khan

Under review: *IEEE Transactions on Consumer Electronics*, 2023.

High-throughput Real-time Edge Stream Processing with Topology-Aware Resource Matching.
Peng Kang, Samee U. Khan, Xiaobo Zhou, and Palden Lama
 Target at: *IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing (CCGrid)*, 2024.

Autoencoder-based Low-Latency and Energy-Efficient DNN Inferencing at the Edge.
 Hasanul Mahmud, **Peng Kang**, Palden Lama, and Sushil Prasad
 Target at: *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

Optimizing Data Distribution in Edge Computing: Performance Modeling Insights.
 Faiza Akram, **Peng Kang**, Palden Lama, and Samee U. Khan
 Target at: *The 44th IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2024.

Working Experience

Google, Pittsburgh	05/2022 - 08/2022
SOFTWARE ENGINEER INTERN	
– Mentors: Tom Black, Max Glick	
Jianxun Culture, Shanghai	01/2018 - 07/2018
SOFTWARE DEVELOPMENT ENGINEER	
Baidu, Beijing	10/2016 - 04/2017
SOFTWARE RELIABILITY ENGINEER	

Awards & Honors

2022	Who's Who , UTSA
2021	NSDI'21 Student Grant , The 18th USENIX Symposium on Networked Systems Design and Implementation (NSDI '21)
	Alvarez Research Competitive Scholarship , UTSA
2020	Phi Kappa Phi , Honor Society
2008	Provincial 2nd Prize , National High School Mathematics League (Gansu, China)

Teaching Experience

Fall 2023	System Programming , Teaching Assistant
	– Lab Recitation
	– Class size: 127
Spring 2023	Cloud Computing , Teaching Assistant
Fall 2022	Cloud Computing , Teaching Assistant
Fall 2019	Computer Organization , Teaching Assistant
	– Lab Recitation
	– Class size: 80
Fall 2018	Operating System , Teaching Assistant

Presentations and Talks

SLO-Aware Virtual Rebalancing for Edge Stream Processing. IC2E, 2021.

Robust Resource Scaling of Containerized Microservices with Probabilistic Machine Learning. UCC, 2020.

UTSA AI Summit, 2019.

UTSA Computer Science Research Showcase, 2019, 2022.

Professional Services & Activities

REVIEWER

- 2023 IEEE Transactions on Network Science and Engineering (TNSE)
2022 IEEE International Conference on Communications (ICC)

WEB MASTER

- 2020 - present IEEE Computer Society Technical Committee on Distributed Processing

PROFESSIONAL MEMBERSHIPS

- 2019 - present IEEE Student Member

Mentoring

05/2023 - present

Faiza Akram, PhD Student, Mississippi State University
Project: *Explore data distribution at edge stream processing.*

06/2022 - 08/2023

Amna Shahid, Master Student, Mississippi State University, Graduated
Project: *Observation of data priority at edge stream processing.*

12/2022 - present

Tongnian Wang, PhD Student, UTSA
Project: *Applied machine learning for healthcare.*

05/2021 - 05/2022

Hasanul Mahmud, PhD Student, UTSA
Project: *Energy-efficient DNN inferencing at the edge.*

Technical Skills

Python: Django/Tornado, Postgres/MySQL, Memcached/Redis, Celery/RabbitMQ, RESTful, Machine Learning (Scipy, Scikit-learn, Pandas, Keras, Tensorflow, PyTorch).

Java: Stream processing (Apache Storm, Apache Spark).

C/C++: OpenMP, Embedded OS (VxWorks), Linux system development.

Cloud: Google Cloud, AWS, KVM, Ubuntu/CentOS, Kubernetes, Docker, Microservices.

Miscellany: shell, git, Jenkins, Jetson Nano, Raspberry Pi, Project Management.

Miscellany

Running. 2017 Seoul International Marathon (4 hours). Texas Independence Relay (Mixed, No.18), 2022.

Cycling. 25 Days Cycling Tour from Chengdu to Lhasa via Sichuan Tibet Highway (1400 miles), 2013.

References

Palden Lama

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Samee U. Khan

Professor, and James Worth
Bagley Chair
(662) 325-3912
skhan@ece.msstate.edu

Dakai Zhu

Professor
(210) 458-7453
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