

# Peng Kang

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## Education

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### 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

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CLOUD/EDGE COMPUTING, DISTRIBUTED SYSTEM, AND MACHINE LEARNING

## Publications

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### CONFERENCE PUBLICATIONS

A Converting Autoencoder Toward Low-latency and Energy-efficient DNN Inference at the Edge.

Hasanul Mahmud, **Peng Kang**, Kevin Desai, Palden Lama and Sushil Prasad

In the *6th Workshop on Parallel AI and Systems for the Edge (PAISE)*, 2024.

High-throughput Real-time Edge Stream Processing with Topology-Aware Resource Matching.

**Peng Kang**, Samee U. Khan, Xiaobo Zhou, and Palden Lama

In the *24th IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*, 2024.

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.

## Working Experience

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### **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

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2024 **CCGrid 2024 travel grant**, NSF

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

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Spring 2024 **Senior Design**, Teaching Assistant

– Class Designer/Lecturer

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

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*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

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### REVIEWER

2023 IEEE Transactions on Network Science and Engineering (TNSE)

2022 IEEE International Conference on Communications (ICC)

## WEB MASTER

2020 - 2024 IEEE Computer Society Technical Committee on Distributed Processing (TCDP)

## PROFESSIONAL MEMBERSHIPS

2019 -  
present IEEE Student Member

## Mentoring

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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.*

## Certificates

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2024 NSF AI Spring School

Google Project Management

## Technical Skills

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**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

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**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

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### Palden Lama

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(210) 458-6088  
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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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