Peng Kang

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Education

The University of Texas at San Antonio
Ph.D. in Computer Science *2018 - 2023 (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

Optimized Edge Stream Processing with Spectral Partitioning and Matching.
Peng Kang, Palden Lama, and Samee U. Khan
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, Sushil Prasad
Target at: *The International Conference on Performance Engineering (ICPE)*, 2024.

Adaptive Performance Modeling for Edge Stream Processing System.
Peng Kang, Faiza Akram, Palden Lama, Samee U. Khan
Soon to submit: *IEEE Transactions on Consumer Electronics*, 2023.

Optimizing Data Distribution in Edge Computing: Performance Modeling Insights.
Faiza Akram, **Peng Kang**, Palden Lama, 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

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
Project: *Observation of data priority at edge stream processing.*

12/2022 - present
Tongnian Wang, PhD Student, UTSA
Project: *Apply 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).

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, Product 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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(662) 325-3912
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