Qingqing Cao

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Education

Stony Brook University — Stony Brook, New York, United States
Ph.D. Candidate, Department of Computer Science — Aug. 2015 - Present
Advisor: Prof. Aruna Balasubramanian

Wuhan University — Wuhan, Hubei, China
B.Eng. in Computer Science & Tech, Computer School — Sept. 2011 - June 2015

Research Interests

Mobile Systems, **Edge Computing**, **NLP Applications**

Honors and Awards

MobiSys 2017 Student Travel Grant Award	2017
Special CS Department Chair Fellowship	2015
Meritorious Winner in the Mathematical Contest in Modeling (MCM)	2014

Publications

1. Jian Xu (co-primary), **Qingqing Cao (co-primary)**, Aditya Prakash, Aruna Balasubramanian, and Don Porter. "UIWear: Easily Adapting User Interfaces for Wearable Devices" , Proceedings of the 23nd ACM Annual International Conference on Mobile Computing and Networking, **MobiCom 2017**.
2. Jian Xu (co-primary), **Qingqing Cao (co-primary)**, Aditya Prakash, Aruna Balasubramanian, and Don Porter. "UIWear: Easily Adapting User Interfaces for Wearable Devices" , Proceedings of the 23nd ACM Annual International Conference on Mobile Computing and Networking, **MobiCom 2017 Demo**. Link: https://youtu.be/YEQ3HNeQnts
3. **Qingqing Cao**, Niranjan Balasubramanian, Aruna Balasubramanian, "MobiRNN: Efficient Recurrent Neural Network Execution on Mobile GPU", 1st International Workshop on Embedded and Mobile Deep Learning, **EMDL 2017**(colocated with MobiSys).

Research Experience

EdgeQA: A Mobile Question Answering System for the Edge — Present
EdgeQA is a local question answering system for mobile devices that uses the state-of-the-art machine reading comprehension techniques and greatly improve end user privacy.
(Paper under submission to NSDI)

- Ported end to end question answering systems to mobile devices with GPU support.
- Optimized question answering performance for mobile platforms by **4** $\sim$ **7x**.

Building APIs for Bot Applications at Scale (Mentor: Oriana Riva) Jun. 2018 - Present
Work in progress

Mobile Deep Learning Accelerator Project (Mentor: Nic Lane) Jul. 2017 - Sept. 2017
During this summer intern, I studied the performance of running deep learning models on the Movidius Neural Compute Stick accelerator.
(Paper under submission to IPSN)

MobiRNN: Efficient Recurrent Neural Network Execution on Mobile Mar. 2017 - Jun. 2017
MobiRNN is a mobile specific optimization library for RNNs that focusses on offloading deep learning tasks to the mobile GPU.

UIWear: virtualizing the smartphone UI to wearable devices Jan. 2016 - Dec. 2016
UIWear is a "write once and extend to many" programming framework for wearable devices that enables the user to use smartphone applications from any of their wearable devices.

* Developed I/O multiplexing mechanism to enable multi-device user interaction. Created UI metaprogram to automatically build companion apps for wearables like smartwatch with minimal developer effort.
* Optimized UIWear protocol (for UI data cross-device communication and rendering) and improved latency by **27%** compared to existing systems.
* Implemented UIWear system on Android Phone and Watch.

Service

Technical Committee Member of MobiSys PhD Forum	2018
Reviewer for IEEE Transactions on Mobile Computing	2018

Courses and Skills

- Courses:
  Analysis of Algorithms (CSE548), Operating Systems (CSE506),
  Machine Learning (CSE512), Fundamentals of Computer Networks (CSE534),
  Artificial Intelligence (CSE537)
- Skills:
  Python, Java, Android, C.