Ning Wang

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EDUCATION

◇ **Ph.D.**, Computer and Information Sciences *9/2013 - 7/2018(expected)*
Temple University, Philadelphia, USA **Advisor**: Jie Wu (h-index: 82)
Thesis Title: Designing Effective Routing and Scheduling Schemes for Mobile Edge Networks

◇ **B.E.**, Electrical Engineering *9/2009 - 6/2013*
University of Electronic Science and Technology of China (UESTC), Chengdu, China
Project: Studies on fast two-dimension terahertz raster scan imaging

EXPERIENCE

Research Assistant Center for Networked Computing
Supervised by Dr. Jie Wu *9/2013 - now*

Summary: mathematic modeling and algorithmic optimization in opportunistic mobile networks, mobile-edge networks, and location-aware services. Specific topics include data routing, trajectory planning, and scheduling:

◇ **Modeling and Routing in Opportunistic Mobile Networks** [3, 6, 10, 11, 17, 18]
- Conducted data-driven analysis and discovered inherit contact properties of opportunistic mobile networks, i.e., exponential contact duration and inter-meeting distributions.
- Proposed a series of routing metrics, including probability-based and social-based schemes.
- Designed efficient data routing and coupon dissertation systems under various forwarding constraints.

◇ **Mobile-edge Computing Optimization** [1, 2, 5, 7, 8, 13, 15]
- Proposed an adaptive data offloading algorithm in LTE-U/LAA environment, which takes advantage of opportunistic WiFi access and dynamically adjusts the downloading strategies.
- Invented the performance-cost trade-off of data aggregation schemes in pub/sub system. Designed an efficient scheme to maximize the performance under the cost constraint.
- Explored the optimal matchmaking in multi-party online gaming, proposed a revised greedy solution with optimality proofs in different network structures.

◇ **Location-aware Service Optimization in Smart Cities** [4, 9, 12, 14, 16]
- Compared a series of trajectory planning strategies for worker recruiting. Proposed a worker recruitment scheme in spatial crowdsourcing applications (e.g., Uber, Waze). Aimed to cover all the service locations in a certain area and balance the workload in each service location.
- Designed a one-to-many charging approach in wireless charging problem with the quadratic attenuation of charging model. Optimized regarding the trade-off between charging efficiency and charging tour.
- Proposed a series of data collection schemes in under water sensor networks. The possible collaboration between ferries are optimized.

Teaching Assistant Dept. of the Computer and Information Sciences
Temple University *1/2014 - now*

◇ CIS 2168: Data Structures, Sections 1 & 7, 2018 fall semester and 2017 spring semester
◇ CIS 3329: Network Architectures, 2014 spring, 2014 fall, 2015 spring, and 2016 fall semesters
◇ CIS 1068: Program Design and Abstraction, Sections 4, 6, & 7, 2015 fall semester
◇ CIS 3319: Wireless Networks and Security, 2016 spring semester

TECHNICAL SIKLL

◇ Languages and Tools: Proficient in Java, MATLAB, C, C++, Python, bash, vim, make, gdb, git, Eclipse, NetBeans, Visual Studio; Familiar with Ruby, Rails, PHP, SQL, .NET, JavaScript, HTML5, CSS3, and Xcode.
◇ Linux (familiar with kernel & device driver development and system programming & administration), Windows and embedded systems.
◇ Specialized programming: network programming, interprocess communication, multi-threading, object-oriented design and programming, file system design and implementation, and web application development.

PROFESSIONAL ACTIVITIES

◇ Conference reviewer for: 2016 IEEE International Conference on Distributed Computing Systems (ICDCS'16), 2015 IEEE International Conference on Computer Communication (INFOCOM'15), 2015 IEEE International Conference on Sensing, Communication, and Conference (SECON'15), 2015 IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS'15), 2015 IEEE Global Communications Conference (GlOBECOM'15), and 2014 IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS'14).
◇ Journal reviewer for: IEEE Transaction on Service Computing, Journal of Parallel and Distributed Computing (JPDC), and International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC).

PUBLICATIONS

Highlights: Authored **18** papers. First-author publications include a top conference (A^*) in networks and communications, i.e., INFOCOM'16, and flagship network conferences, i.e., UIC'17, ICCCN'16, MASS'16, 14, and GLOBECOM'15.

Conferences

1. **N. Wang** and J. Wu, "Lag Minimization Through Optimal Player Matchmaking in Multi-Party Online Gaming", *submitted to the 37th IEEE International Conference on Computer Communications (INFOCOM'18)*.
2. **N. Wang** and J. Wu, "Optimal Cellular Traffic Offloading Through Opportunistic Mobile Networks by Data Partitioning", *submitted to the IEEE International Conference on Wireless Communications and Networking Conference (WCNC'18)*.
3. **N. Wang** and J. Wu, "Optimal Data Partitioning and Forwarding in Opportunistic Mobile Networks", *submitted to the IEEE International Conference on International Conference on Communications (ICC'18)*.
4. **N. Wang**, J. Wu, and P. Ostovari, "Coverage and Min-Max Workload Cost in Spatial Crowdsourcing", *Proc. of the 14th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC'17)*.
5. **N. Wang** and J. Wu, "Maximizing the User's Benefit in the Mobile Cloud Computing", *Proc. of the MobiCom 8th ACM Wireless of the Students, by the Students, and for the Students Workshop (MobiCom S3'16)*.
6. **N. Wang** and J. Wu, " Mutually Exclusive Data Dissemination in the Mobile Publish/Subscribe System," *Proc. of the 13th IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS'16)*.
7. **N. Wang** and J. Wu, " Minimizing the Subscription Aggregation Cost in the Content-based Pub/Sub System", *Proc. of the 25th IEEE International Conference on Computer Communications and Networks (ICCCN'16)*.
8. **N. Wang** and J. Wu. "Opportunistic WiFi Offloading in a Vehicular Environment: Waiting or Downloading Now?", *Proc. of the the 35th IEEE International Conference on Computer Communications (***INFOCOM'16***).*
9. **N. Wang** and J. Wu. "Trajectory Scheduling for Timely Data Report in Underwater Wireless Sensor Networks", *Proc. of the IEEE Global Communications Conference (GlOBECOM'15).*
10. **N. Wang** and J. Wu. "A General Data and Acknowledgement Dissemination Scheme in Mobile Social Networks", *Proc. of the 11th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS'14).*
11. **N. Wang** and J. Wu. "InterestSpread: An Efficient Method for Content Transmission in Mobile Social Networks", *Proc. of the 1st International Workshop on Mobile Sensing, Computing and Communication (MobiHoc MSCC'14).*

Journals

12. **N. Wang** and J. Wu, "Cost-efficient Heterogeneous Coverage Requirement in Spatial Crowdsourcing", submitted to IEEE Transactions on Big Data.
13. **N. Wang** and J. Wu, "Optimal Cellular Data Offloading with Coexistence of Opportunistic WiFi Connection in VANETs", submitted to ACM Transactions on Cyber-Physical Systems.
14. **N. Wang** and J. Wu, "Bundle Charging: Mobile Charging Trajectory Optimization", submitted to IEEE Transactions on Vehicular Technology.
15. **N. Wang** and J. Wu, "Cost-Efficient Subscription Aggregation in the Content-Based Pub/Sub System", submitted to Journal of Parallel and Distributed Computing.
16. H. Zheng, **N. Wang**, and J. Wu, "Minimizing Deep Sea Data Collection Delay with Autonomous Underwater Vehicles", Journal of Parallel and Distributed Computing, Vol 104, 2017.
17. **N. Wang**, J. Wu and L. Sheng, "Rethink Data Forwarding in Mobile Social Networks using Movement History Information", Ad Hoc & Sensor Wireless Networks, Vol. 4, No. 1, 2016.
18. **N. Wang** and J. Wu, " Data Dissemination in Mobile Social Networks with the Acknowledgment Feedback", *Journal of Sensor and Actuator Networks*, Vol. 5, No. 2, 2016.

AWARDS

◇ Student travel grant award of the IEEE SmartWorld 2017 *2017*
◇ Student travel grant award of the IEEE MobiCom 2016 *2016*
◇ Student travel grant award of the IEEE INFOCOM 2016 *2016*
◇ Student travel grant award of the IEEE MASS 2014 *2014*
◇ The excellent graduate of Sichuan Province, China *2013*
◇ The Tang Lixin Scholarship, the most competitive scholarship in UESTC *2012*
◇ The National Scholarship, China *2011*
◇ The National Scholarship, China *2010*

REFERENCES

◇ Prof. **Jie Wu**, Laura H. Carnell Professor, Temple University
Phone: 215-204-6356
Email: jiewu@temple.edu
Webpage:http://cis-linux1.temple.edu/∼jiewu/

◇ Prof. **Zhen Jiang**, Professor, West Chester University of Pennsylvania
Phone: 610-738-0350
Email: zjiang@wcupa.edu
Webpage:https://www.cs.wcupa.edu/∼zjiang/

◇ Prof. **John Fiore**, Assistant Professor, Temple University
Phone: 215-204-3357
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◇ Prof. **Bo Ji**, Assistant Professor, Temple University
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◇ Prof. **Andrew Rosen**, Assistant Professor, Temple University
Phone: 678-665-1415
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