

Ning Wang, Ph.D.

Tenure-Track Assistant Professor
Department of Computer Science
Rowan University
Glassboro, USA

EDUCATION

- ◇ **Ph.D.**, Computer and Information Sciences 09/2013 - 08/2018
Temple University, Philadelphia, USA **Advisor:** Jie Wu (h-index: [86](#))
Thesis Title: Efficient Routing and Offloading Schemes Design for Internet-of-Things Systems.
- ◇ **B.E.**, Electrical Engineering 09/2009 - 06/2013
University of Electronic Science and Technology of China (UESTC), Chengdu, China
Project: Studies on fast two-dimension terahertz raster scan imaging.

EMPLOYMENT

- ◇ **Tenure-Track Assistant Professor**, Dept. of Computer Science 09/2018 - now
Rowan University, Glassboro, USA
- ◇ **Research/Teaching Assistant**, Dept. of Computer and Information Sciences 09/2013 - 08/2018
Temple University, Philadelphia, USA

RESEARCH EXPERIENCES

My research interests belong to the broad category of Internet-of-Things systems with a focus on routing and performance optimization problems. Specific topics include:

- ◇ **Opportunistic Mobile Networks**
 - 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 dissemination systems under various forwarding constraints.
- ◇ **Mobile Edge Computing**
 - 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.
- ◇ **Smart Cities**
 - 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 EXPERIENCES

- ◇ CIS 2107: Computer Systems & Low-Level Programming (2018 spring semester, 1 section)
- ◇ CIS 2168: Data Structures (2017 fall semester and 2017 spring semester, 3 sections)
- ◇ CIS 3329: Network Architectures (2014 spring, 2014 fall, 2015 spring, and 2016 fall semesters, 4 sections)
- ◇ CIS 1068: Program Design and Abstraction (2015 fall semester, 3 sections)
- ◇ CIS 3319: Wireless Networks and Security (2016 spring semester, 1 section)

PUBLICATIONS

Highlights: Authored **21** papers (**17** published papers and 4 papers under revision/review). First-author publications include two top conference in networks and communications, i.e., IWQoS'18 and INFOCOM'16, and flagship network conferences, i.e., WoWMoM'18, ICC'18, WCNC'18, UIC'17, ICCCN'16, MASS'16, GLOBECOM'15, and MASS'14.

Published Conference Papers

1. **N. Wang** and J. Wu, "[Optimal Cloud Instance Acquisition via IaaS Cloud Brokerage with Volume Discount](#)," *Proc. of IEEE/ACM 26th International Symposium on Quality of Service (IWQoS'18)*.
2. **N. Wang** and J. Wu, "[Lag Minimization Through Optimal Player Matchmaking in Multi-Party Online Gaming](#)," *Proc. of the 19th IEEE International Conference on a World of Wireless, Mobile and Multimedia Networks (WoWMoM'18)*.
3. **N. Wang** and J. Wu, "[Optimal Data Partitioning and Forwarding in Opportunistic Mobile Networks](#)," *Proc. of the IEEE International Conference on International Conference on Communications (ICC'18)*.
4. **N. Wang** and J. Wu, "[Optimal Cellular Traffic Offloading Through Opportunistic Mobile Networks by Data Partitioning](#)," *Proc. of the IEEE International Conference on Wireless Communications and Networking Conference (WCNC'18)*.
5. **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)*.
6. **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)*.
7. **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)*.
8. **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)*.
9. **N. Wang** and J. Wu, "[Opportunistic WiFi Offloading in a Vehicular Environment: Waiting or Downloading Now?](#)," *Proc. of the 35th IEEE International Conference on Computer Communications (INFOCOM'16)*.
10. **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)*.
11. **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)*.
12. **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)*.

Published Journal Papers

13. **N. Wang** and J. Wu, "Cost-efficient Heterogeneous Coverage Requirement in Spatial Crowdsourcing," accepted by the IEEE Transactions on Big Data.
14. **N. Wang** and J. Wu, "[Cost-Efficient Subscription Aggregation in the Content-Based Pub/Sub System](#)," accepted by Journal of Parallel and Distributed Computing.
15. 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.
16. **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.
17. **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.

Papers in Submission/Revision

18. **N. Wang** and J. Wu, "Bundle Charging: Mobile Charging Trajectory Optimization," submitted to the 15th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS'18).

19. H. Zheng, J. Wu, and **N. Wang**, "Non-Submodularity and Approximability: Influence Maximization in Online Social Networks," submitted to the 26th IEEE International Conference on Network Protocols (ICNP'18).
20. **N. Wang** and J. Wu, "Cost-Efficient Worker Trajectory Planning Optimization in Spatial Crowdsourcing Platform," submitted to the 26th IEEE International Conference on Network Protocols (ICNP'18).
21. **N. Wang** and J. Wu, "Optimal Cellular Data Offloading with Coexistence of Opportunistic WiFi Connection in VANETs," submitted to IEEE Transactions on Systems, Man, and Cybernetics: Systems.

PROFESSIONAL ACTIVITIES

- ◇ Conference reviewer for: 2018 IEEE Global Communications Conference (GLOBECOM'18), 2018 IEEE International Conference on Computer Communications and Networks (ICCCN'18), 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), Journal of Computer Science and Technology (JCST), International Journal of Ad Hoc and Ubiquitous Computing (IJAHUC), and SCIENCE CHINA Information Sciences.

AWARDS

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| ◇ CIS Outstanding Graduate Teaching Assistant Award | 2018 |
| ◇ 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 |

TECHNICAL SKILL

- ◇ 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.

REFERENCES

- ◇ Prof. **Jie Wu**, Laura H. Carnell Professor, Temple University
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- ◇ Prof. **Zhen Jiang**, Professor, West Chester University of Pennsylvania
Phone: 610-738-0350 Email: zjiang@wcupa.edu
- ◇ Prof. **John Fiore**, Assistant Professor, Temple University
Phone: 215-204-3357 Email: john.fiore@temple.edu
- ◇ Prof. **Bo Ji**, Assistant Professor, Temple University
Phone: 215-204-3759 Email: boji@temple.edu
- ◇ Prof. **Andrew Rosen**, Assistant Professor, Temple University
Phone: 678-665-1415 Email: andrew.rosen@temple.edu