Yin Sun

Contact Information

Bryghte D. and Patricia M. Godbold Endowed Associate Professor
Ginn Faculty Achievement Fellow
Department of Electrical and Computer Engineering
Auburn University
213 Broun Hall, Auburn, AL 36849-5201, USA
Mobile: 614-906-5038
E-mail: yzs0078@auburn.edu
Homepage: auburn.edu/∼yzs0078
Google Scholar: https://bit.ly/3kDmyVF

Research Interests

Semantic Communications and Networking
Wireless Networks
Information Theory
Applied AI in Agriculture

Professional Membership

IEEE Senior Member
IEEE Control Society Member
IEEE Communications Society Member
IEEE Information Theory Society Member
ACM Member

Professional Experience

Bryghte D. and Patricia M. Godbold Endowed Associate Professor 10/01/23 – present
Department of ECE, Auburn University

Ginn Faculty Achievement Fellow 08/16/23 – present
Samuel Ginn College of Engineering, Auburn University

Associate Professor 08/16/23 – 09/30/23
Department of ECE, Auburn University

Graduate Program co-Officer 06/01/22 – 05/08/23
Department of ECE, Auburn University

Assistant Professor 08/16/17 – 08/15/23
Department of ECE, Auburn University

Research Associate 10/01/14 – 08/15/17
Department of ECE, The Ohio State University

Postdoctoral Scholar 08/25/11 – 09/30/14
Department of ECE, The Ohio State University

Education

Ph.D. degree in Electronic Engineering, Tsinghua University, China Sep. 2006 – Jun. 2011

Major: Communications and Information Systems
Thesis: Resource Allocation of Heterogeneous Cooperative Relay Networks
Supervisor: Shidong Zhou
Award: Excellent Doctoral Thesis Award

B.Eng. degree in Electronic Engineering, Tsinghua University, China Sep. 2002 – Jun. 2006

Major: Electronic Science and Technology

Awards: Excellent Bachelor Thesis Award, Graduation with Honor

Grants and Contracts

Total extramural funds: $5 million. Sun's personal portion: $1.92 million.

1. Principal Investigator (Collaborative PIs: Ness B. Shroff and Kaushik R. Chowdhury), "Distributed Network Control in Dynamic Military Environments: A Learning based approach — from Theory to Implementation," Army Research Office: ARO W911NF-24-2-0205, September 9, 2024 – September 8, 2026, $1,400,000.00 (Sun's portion: $423,750.00).
2. Co-Principal Investigator (Collaborative PI: Ujjwal Guin), "Counterfeit Detection Test Plan Optimization and Testing Proficiency Assessment," Aerocyonics, Inc., October 16, 2023 – April 30, 2026, $485,382.00 (Sun's portion: $138,136.00).
3. Principal Investigator (Collaborative PIs: Rui Chen, Robert E. Zabawa, Eunice A. Bonsi, and Souleymane Fall), "Advancing Food Security and Nutrition through Machine Learning-based Forecasting and Interventions for Food Pantries in Alabama," United States Department of Agriculture-National Institute of Food and Agriculture (USDA-NIFA): 2023-69006-40213, June 15, 2023 – June 14, 2027, $650,000.00 (Sun's portion: $180,000.00).
4. Principal Investigator, "CAREER: Semantic and Goal-oriented Status Updating for Real-time Inference, Monitoring, and Decision-Making," National Science Foundation: CNS-2239677, May 1, 2023 – April 30, 2028, $500,000.00, with an REU Supplement $36,000.00.
5. Principal Investigator (Collaborative PI: Ness B. Shroff), "Towards Breaking the Gridlock: Delay, Convergence, and Complexity in Highly Dynamic Tactical Networks," Army Research Office: ARO W911NF-21-1-0244, May 1, 2021 – April 30, 2024, $420,000.00 (Sun's portion: $125,000.00).
6. Principal Investigator (Collaborative PI: Anthony Ephremides, UMD), "CIF: Small: Collaborative Research: On the Fundamental Nature of the Age of Updates," National Science Foundation: CCF-1813078, June 1, 2018 – May 31, 2022, $491,283.00 (Sun's portion: $250,000.00), with an REU Supplement $32,000.00.
7. Principal Investigator (Collaborative PIs: Ness B. Shroff, Jia Liu, Sastry Kompella), "Achieving Low Delay and Highly Adaptive Tactical Networking with Multi-Path TCP," Office of Naval Research: ONR N00014-17-1-2417, September 1, 2017 – August 15, 2021, $990,000.00 (Sun's portion: $237,152.00).

Honors and Awards

Honor to serve as General co-Chair of the 23rd International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt 2026) 2026

Keynote Speaker: The 22nd International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt 2025) 2025

Honor to serve as Technical Program Committee co-Chair of ACM MobiHoc Conference 2025

Research Award for Excellence (for senior faculty at the associate and full professor level), College of Engineering, Auburn University 2024

Keynote Speaker: IEEE MILCOM Workshop on Quality, Age, and Value of Information for Tactical Networks (QuAVoI) 2023

Keynote Speaker: IEEE WiOpt Workshop on Resource Allocation and Cooperation in Wireless Networks (RAWNET) 2023

Bryghte D. and Patricia M. Godbold Endowed Professorship 2023

Ginn Faculty Achievement Fellowship 2023

NSF CAREER Award 2023

Distinguished Member of the IEEE INFOCOM Technical Program Committee 2022

Best Paper of the Year Award, Journal of Communications and Networks (JCN) 2021

Best Paper Runner-up Award, ACM MobiHoc Conference 2020

Auburn Author Award, Auburn University 2020

Best Paper Award, IEEE/IFIP WiOpt Conference 2019

Best Student Paper Award (out of all papers whose first author is a student), IEEE/IFIP WiOpt Conference 2013

Excellent Doctoral Thesis Award (25 winners from 1566 PhDs), Tsinghua University 2011

Distinction in Postgraduate Research of Dept. EE (1st rank), Tsinghua University 2011

Kang Ning Scholarship, Tsinghua University 2010

Bounty for Publishing Paper in High Quality International Conferences of Communications: Outstanding Research Award, Nokia Siemens Networks 2010

Jiang Zhen Scholarship, Tsinghua University 2009

Bounty for Publishing Paper in High Quality International Conferences of Communications, Nokia Siemens Networks 2009

Outstanding Person in Community Practice of Graduate Students, Tsinghua University 2008

Scholarship for Excellent Students, Tsinghua University 2008

Guang Hua Scholarship for Graduate Students, Tsinghua University 2007

Graduation with Honor, Tsinghua University 2006

Excellent Bachelor Thesis Award, Tsinghua University 2006

First-class Scholarship for Excellence Students, Tsinghua University 2005

Third-class Scholarship for Excellence Students, Tsinghua University 2004

Kodak Scholarship for Undergraduate Students, Tsinghua University 2003

Teaching

1. ELEC 5970/6970, Special Topics: Applied Statistics and Machine Learning, Auburn University, & AGSC 501: Applied Statistics and Machine Learning, Tuskegee University, Spring 2025
   Co-teaching with Dr. Rui Chen
   Hours: 2 lecture hours and 1 lab hour
   Enrollment: 8 undergraduate students and 13 graduate students (Auburn University)
   9 graduate students (Tuskegee University)

2. ELEC 2120, Signals and Systems, Auburn University, Fall 2024

Hours: 3 lecture hours and 1 lab hour
Enrollment: 62 undergraduate students

3. ELEC 5970/6970, Special Topics: Applied Statistics and Machine Learning, Auburn University, & AGSC 501: Applied Statistics and Machine Learning, Tuskegee University, Spring 2024
   Co-teaching with Dr. Rui Chen
   Hours: 2 lecture hours and 1 lab hour
   Enrollment: 4 undergraduate students and 10 graduate students (Auburn University)
   5 undergraduate/graduate students (Tuskegee University)

4. ELEC 2120, Signals and Systems, Auburn University, Fall 2023
   Hours: 3 lecture hours and 1 lab hour
   Enrollment: 62 undergraduate students

5. ELEC 5970/6970, Special Topics: Applied Statistical and Machine Learning, Auburn University & AGSC 501: Applied Statistics and Machine Learning, Tuskegee University, Spring 2023
   Co-teaching with Dr. Rui Chen
   Hours: 2 lecture hours and 1 lab hour
   Enrollment: 8 undergraduate students and 12 graduate students (Auburn University)
   7 undergraduate/graduate students (Tuskegee University)

6. ELEC 2120, Signals and Systems, Auburn University, Spring 2023
   Hours: 3 lecture hours and 1 lab hour
   Enrollment: 52 undergraduate students

7. ELEC 7970, Special Topics: Reinforcement Learning, Auburn University, Fall 2022
   Hours: 3 lecture hours
   Enrollment: 8 graduate students

8. ELEC 2120, Signals and Systems, Auburn University, Fall 2022
   Hours: 3 lecture hours and 1 lab hour
   Enrollment: 61 undergraduate students

9. ELEC 7970, Special Topics: Reinforcement Learning, Auburn University, Spring 2022
   Hours: 3 lecture hours
   Enrollment: 11 graduate students (on-campus section), 2 graduate students (distance section)

10. ELEC 2120, Signals and Systems, Auburn University, Spring 2022
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 24 undergraduate students

11. ELEC 7970, Special Topics: Reinforcement Learning, Auburn University, Fall 2021
    Hours: 3 lecture hours
    Enrollment: 18 graduate students (on-campus section), 2 graduate students (distance section)

12. ELEC 2120, Signals and Systems, Auburn University, Fall 2021
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 50 undergraduate students

13. ELEC 7970, Special Topics: Information Freshness, Auburn University, Spring 2021
    Course Material: http://webhome.auburn.edu/∼yzs0078/Information_freshness_Spring2021
    Hours: 3 lecture hours
    Enrollment: 6 graduate students

14. ELEC 2120, Signals and Systems, Auburn University, Spring 2021
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 35 undergraduate students

15. ELEC 7970/7976, Special Topics: Reinforcement Learning, Auburn University, Fall 2020
    Hours: 3 lecture hours
    Enrollment: 9 graduate students (on-campus section), 3 graduate students (distance section)

16. ELEC 2120, Signals and Systems, Auburn University, Fall 2020
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 31 undergraduate students

17. ELEC 2120, Signals and Systems, Auburn University, Spring 2020
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 25 undergraduate students

18. ELEC 2120, Signals and Systems, Auburn University, Fall 2019
    Hours: 3 lecture hours and 1 lab hour
    Enrollment: 58 undergraduate students

19. ELEC 2120, Linear Signals and Systems, Auburn University, Fall 2018
    Hours: 3 lecture hours
    Enrollment: 29 undergraduate students

20. ELEC 5120/6120, Telecommunication Networks, Auburn University, Fall 2017
    Hours: 3 lecture hours
    Enrollment: 12 students

Students

Ph.D. Students

Yuchen Tian	August 2024 – present
Hutama A. Bramantyo	August 2024 – present
Samuel Chamoun	August 2024 – present
Sirin Chakraborty	January 2024 – present
Mengxue Li (co-supervised with Rui Chen)	August 2023 – present

Undergraduate Students

Robin Buchanan	May 2025 – present
Travis Ross	May 2025 – present
Christian Mcdowell (supported by NSF REU)	August 2024 – present

Ph.D. Committee Member

Keyuan Zhang (Virginia Tech) December 2023 – present
Major advisor: Bo Ji

Kaniz F. Mishty August 2023 – present
Major advisor: Mehdi Sadi

Ye Zhu November 2021 – present
Major advisor: Xiaowen Gong

Wesley O'Quinn October 2021 – present
Major advisor: Shiwen Mao

Former Students

Former Ph.D. Students

Tasmeen Zaman Ornee August 2018 – May 2024
Employment: Postdoc at The Ohio State University, hosted by Ness B. Shroff
Homepage: tzo0017.github.io

Md Kamran Chowdhury Shisher August 2018 – May 2024
Employment: Postdoc at Purdue University, hosted by Christopher Brinton and Mung Chiang
Homepage: kamran0153.github.io

Jiayu Pan (co-supervised with Ness B. Shroff) August 2018 – August 2023
Employment: Assistant Professor at Zhejiang University.
Homepage: jiayupan26.github.io

Ahmed M. Bedewy (co-supervised with Ness B. Shroff) August 2015 – May 2021
Employment: Senior Engineer at Qualcomm, Bridgewater, NJ.

Former Visiting Ph.D. Students

Andrea Panebianco, University of Palermo, Italy January 2025 – July 2025

Former Master Student

Tasmeen Zaman Ornee August 2018 – August 2022
Employment: PostDoc at The Ohio State University, hosted by Ness B. Shroff

Md Kamran Chowdhury Shisher August 2018 – August 2022
Employment: PostDoc at Purdue University, hosted by Christopher Brinton and Mung Chiang

Shaoyi Li August 2017 – December 2019
Employment: Cloud Engineer at Sound Payments, Jacksonville, FL.

Former Undergraduate Students

Patrick Howell (supported by NSF REU) August 2024 – May 2025

Aditya Menon (supported by NSF REU) January 2025 – May 2025

Benson Jiang (supported by NSF REU) January 2025 – May 2025

Kathryn Lim (supported by NSF REU) September 2024 – May 2025

Christopher R. Colón (supported by NSF REU) January 2024 – December 2024
Affiliation: Undergraduate student at Auburn University, AL.

Isaac Lamm (supported by NSF REU) September 2024 – December 2024
Affiliation: Undergraduate student at Auburn University, AL.

Aditya Menon May 2024 – July 2024
Affiliation: Undergraduate student at Auburn University, AL.

Benson Jiang May 2024 – July 2024
Affiliation: Undergraduate student at Auburn University, AL.

Zachary Gayford (supported by NSF REU) January 2024 – April 2024
Affiliation: Undergraduate student at Auburn University, AL.

Samuel Chamoun (supported by NSF REU) May 2023 – May 2024
Affiliation: PhD student at Auburn University, AL.

Cason B. Vazquez (supported by NSF REU) August 2023 – December 2023
Affiliation: IMEG Corp, Jacksonville, FL.

Sean Burleson (supported by NSF REU) June 2023 – August 2023
Affiliation: Undergraduate student at Auburn University, AL.

Suchit Bapatla (supported by NSF REU, co-advised with Rui Chen) June 2023 - July 2023
Affiliation: Undergraduate student at UIUC, IL.

Grace Palenapa (supported by NSF REU) May 2020 – August 2022
Affiliation: Undergraduate student at Auburn University, AL.

Ye Sun September 2022 – December 2022
Affiliation: Graduate student at University of Washington, WA.

Christobel Nweke May 2021 – December 2021
Employment: Physical Design Engineer at Ericsson, Austin, TX.

Eli Dvoskin (supported by NSF REU) May 2021 – December 2021
Affiliation: Undergraduate student at Auburn University, AL.

Justin Tran (supported by NSF REU) May 2021 – April 2022
Employment: Engineer at Southern Company, Birmingham, AL.

Vibhu Singh January 2021 – December 2021
Affiliation: Software Engineer at JPMorgan Chase & Co.

Winston Van November 2018 – May 2019
Employment: Engineer at Apple, CA.

Anni Zhang October 2018 – May 2019

Kun Wang May 2018 – May 2019
Joined the Master program at Western University.
Affiliation: Graduate student at Western University, Ontario, Canada.

Promise B. Owei January 2018 – May 2018
Employment: RF engineer at Notora LLC, Alpharetta, GA.

Collin Pike January 2018 – May 2018
Joined the Cybersecurity Engineering Master program at Auburn University.
Employment: Consultant at American Datalink Inc.

Don Tran August 2017 – May 2018
Employment: Software Engineer at Intuitive Research and Technology Corporation, Huntsville, AL

Jordan Sosnowski August 2017 – January 2018
Joined the Cybersecurity Engineering Master program at Auburn University.
Employment: Cyber Security Analyst at Pacific Northwest National Laboratory

Murphy Braswell August 2017 – January 2018
Employment: System Administrator at Harbert College of Business, Auburn University, AL.

Benjamin Cyr August 2017 – July 2018
Joined the Ph.D. program at the University of Michigan.
Current affiliation: Ph.D. student at the University of Michigan, MI.

Former High School Intern Student

Kevin Yan May 2022 – December 2023
Auburn High School, Auburn, AL August 2022 – December 2023
Auburn Junior High School, Auburn, AL May 2022 – August 2022

Ph.D. Committee Member

Mayur Basu April 2023 – December 2023
Major advisor: Eduard Muljadi
Employment: Senior Electrical Engineer, Larsen & Toubro, Fairfield, CA

Ticao Zhang October 2021 – August 2022
Major advisor: Shiwen Mao
Employment: Research Scientist, Ericsson Inc., Santa Clara, CA

Ningkai Tang March 2018 – May 2021
Major advisor: Shiwen Mao
Employment: R&D Engineer, State Grid NARI Group Corporation State Grid Electric Power Research Institute, Nanjing, China

M.S. Committee Member

Chao Yang September 2017 – December 2017
Major advisor: Shiwen Mao
Employment: Ph.D. student at Auburn University

John Ragland October 2019 – April 2020
Major advisor: Thaddeus Roppel
Employment: Ph.D. student at the University of Washington.

University Reader

Bo Hui (Dept. CSSE, Auburn University, supervised by Wei-Shinn (Jeff) Ku) 2023

Abhishek Kulkarni (Dept. CSSE, Auburn University, supervised by Alvin Lim) 2023

Honors and Awards of Supervised Students

Christian Mcdowell, Walt and Virginia Woltosz Fellowship 2026

Sirin Chakraborty, NSF Student Travel Grant, IEEE INFOCOM 2025

Sirin Chakraborty, 100+ Women Strong Travel Fellowship Award 2025

Sirin Chakraborty, 100+ Women Strong Outstanding Departmental Annual Graduate Award 2025

Christian Mcdowell, Auburn University Undergraduate Research Fellowship 2025

Hutama Bramantyo, Fulbright Doctoral Degree (PhD) Scholarship 2024

Samuel Chamoun, Walt and Virginia Woltosz Fellowship 2024

Tasmeen Zaman Ornee, Invited Poster Presentation "Timely Remote Estimation with Applications to Safety Monitoring," Graduation Day at the ITA Workshop 2024

Md Kamran Chowdhury Shisher, Invited Poster Presentation "Timely Inference over Networks," Graduation Day at the ITA Workshop 2024

Md Kamran Chowdhury Shisher, Invited Presentation "Timely Inference over Networks," Southeast Control Conference 2024

Tasmeen Zaman Ornee, Student Travel Grant, IEEE MILCOM 2023

Tasmeen Zaman Ornee, 100+ Women Strong Travel Fellowship Award 2023

Md Kamran Chowdhury Shisher, Student Travel Grant, ACM MobiHoc 2023

Md Kamran Chowdhury Shisher, NSF Travel Grant for the North American School of Information Theory 2023

Tasmeen Zaman Ornee, NSF Travel Grant for North American School of Information Theory 2023

Kevin Yan received the Bronze Medal at the Genius Olympiad 2023

Kevin Yan received the Central Intelligence Agency Special Award at the Regeneron International Science and Engineering Fair (ISEF) 2023

Awarded project: *Kevin Yan, Leveraging Convolutional Neural Networks, Deep Learning, and Computer Vision in a Novel Approach to Rapid Banana Disease Detection*

Tasmeen Zaman Ornee, 100+ Women Strong Outstanding Graduate Student Award 2023

Kevin Yan received 5 awards at the Greater East Alabama Regional Science and Engineering Fair, including Innovation of Robotic Systems, International Development Science Champion Award, AUM Engineering Award, Environmental Science and GIS Award, and 1st Place Category Award-Robotics. Mr. Yan is a 10th-grade student from the Auburn High School. 2023

Tasmeen Zaman Ornee, 100+ Women Strong Travel Fellowship Award 2023

Tasmeen Zaman Ornee, Student Travel Grant, ACM MobiHoc 2022

Md Kamran Chowdhury Shisher, Student Travel Grant, ACM MobiHoc 2022

Tasmeen Zaman Ornee, 100+ Women Strong Travel Fellowship Award 2022

Md Kamran Chowdhury Shisher, NSF Student Conference Award, IEEE INFOCOM 2022

Tasmeen Zaman Ornee, NSF Student Conference Award, IEEE INFOCOM 2022

Thomas Orrison, Walt and Virginia Woltosz Fellowship 2022

Benjamin Cyr, Journal of Communications and Networks (JCN) Best Paper Award 2021

Md Kamran Chowdhury Shisher, NSF Student Conference Award, IEEE INFOCOM 2021

Ahmed M. Bedewy, Runner-up of Best Paper Award, ACM MobiHoc Conference 2020

Tasmeen Zaman Ornee, Best Paper Award, IEEE/IFIP WiOpt Conference 2019

Professional Activities and Services

Workshop Founder

IEEE INFOCOM Age and Semantics of Information Workshop, 2018 - present
WiOpt Workshop on Modeling and Optimization in Semantic Communications (MOSC), 2023 - 2024

Paper Repository Maintainer

Online Paper Repository on Age of Information (2016 - present): auburn.edu/∼yzs0078/AoI.html

Editorial Board

1. Editor for the *IEEE/ACM Transactions on Networking*, January 2025 - present.
2. Associate Editor for the *IEEE Transactions on Information Theory*, July 2024 - present.
3. Associate Editor for the *IEEE Transactions on Network Science and Engineering (TNSE)*, February 2022 - December 2024.
4. Editor for the *Journal of Communications and Networks (JCN)*, March 2020 - present.
5. Editor for the *IEEE Transactions on Green Communications and Networking (TGCN)*, January 2023 - September 2023.
6. Guest Editor of the *Journal of Communications and Networks (JCN)* for the special issue on "A Journey from Age of Information to Semantics of Information," 2023.
7. Guest Editor of the *IEEE Journal on Selected Areas in Information Theory (JSAIT)* for the special issue on "The Role of Freshness and Semantic Measures in the Transmission of Information for Next Generation Networks," 2023.
8. Guest Editor of *Frontiers in Communications and Networks* for the special issue on "Age of Information," 2021-2022.
9. Guest Editor of *Entropy* for the special issue on "Age of Information: Concept, Metric and Tool for Network Control," 2021-2023.

10. Guest Editor of the *IEEE Journal on Selected Areas in Communications (JSAC)* for the special issue on "Age of Information in Real-time Systems and Networks," 2021.

Conference General Chair

IEEE/IFIP WiOpt 2026

Conference Technical Program Committee (TPC) Chair

ACM MobiHoc 2025

Conference Technical Program Committee (TPC) Vice-Chair

IEEE/IFIP WiOpt 2020

Conference Technical Program Committee (TPC) Track Chair

Track: "Emerging Technologies, Architectures, and Services", IEEE WCNC 2021

Conference Workshop Chair

IEEE/IFIP WiOpt 2024
ACM MobiHoc 2023

Conference Submission and Publication Chair

ACM MobiHoc 2022

Conference Publicity Chair

IEEE/IFIP WiOpt 2025
34th International Teletraffic Congress (ITC34) 2022
ACM MobiHoc 2021

Conference Web Chair

IEEE INFOCOM 2021
IEEE INFOCOM 2020
ACM MobiHoc 2019

Conference Session Chair

"Wireless and Age of Information," ITA Workshop 2025

"Session 8: Privacy and Blockchains," ACM MobiHoc 2022

"Wireless Networks," IEEE INFOCOM Age of Information Workshop 2022

"Poster: Wireless Systems and IoT," IEEE INFOCOM 2022

"Poster Session 2," IEEE INFOCOM 2021

"Wireless Mesh and Ad Hoc Networks 1," IEEE INFOCOM 2019

"Ultra Dense Networks," IEEE INFOCOM 2018

"Recovery Algorithms and Online Learning," ITA Workshop 2018

"Age of Information 1," IEEE ISIT 2017

Workshop Chair and Workshop General Chair

ACM MobiHoc Workshop on the Integration between Distributed Machine Learning and the Internet of Things (AIoT), 2024
ACM MobiHoc Age and Semantics of Information Workshop, 2024
WiOpt Workshop on Modeling and Optimization in Semantic Communications (MOSC), 2023
IEEE INFOCOM Age of Information Workshop 2019
IEEE INFOCOM Age of Information Workshop 2018

Workshop Technical Program Committee (TPC) Chair

IEEE INFOCOM Age of Information Workshop 2019
IEEE INFOCOM Age of Information Workshop 2018

Workshop Steering Committee Member

(responsible for inviting workshop organizers)
IEEE INFOCOM Age and Semantics of Information Workshop, 2025
WiOpt Workshop on Modeling and Optimization in Semantic Communications (MOSC), 2024
IEEE INFOCOM Age and Semantics of Information Workshop, 2024
IEEE INFOCOM Age of Information Workshop, 2023
IEEE INFOCOM Age of Information Workshop, 2022
IEEE INFOCOM Age of Information Workshop, 2021
IEEE INFOCOM Age of Information Workshop, 2020

Conference and Workshop TPC Member (by year)

2025: ACM MobiHoc, Age and Semantics of Information Workshop

2024: IEEE INFOCOM, ACM MobiHoc

2023: IEEE INFOCOM, ACM MobiHoc, IEEE International Conference on Distributed Computing Systems, Age of Information Workshop

2022: IEEE INFOCOM, IEEE ICC Workshop on Short Packet Communications for 6G Mission-Critical Applications, ACM MobiHoc, Age of Information Workshop, IEEE WiOpt, ITC 34

2021: IEEE INFOCOM, ACM MobiHoc, Age of Information Workshop, IEEE WCNC, IEEE WiOpt

2020: IEEE INFOCOM, ACM MobiHoc, Age of Information Workshop, IEEE WCNC, IEEE WiOpt

2019: IEEE INFOCOM, ACM MobiHoc, Age of Information Workshop, RAWNET Workshop

2018: IEEE INFOCOM, ACM MobiHoc, Age of Information Workshop

2017: IEEE INFOCOM, ACM MobiHoc

2016: IEEE INFOCOM, IEEE/IFIP WiOpt

Panel Organizer

Panel Discussion at the 1st Age of Information Workshop, 2018
Topic: How Significant is the Age of Information Concept?
Panelists: Roy D. Yates, Eytan Modiano, Anthony Ephremides, Bo Bai

Proposal Reviewer

National Science Foundation, 2024
National Science Foundation, 2023
National Science Foundation, 2019

Judge for Alabama Science and Engineering Fair

Senior Level (grades 9 - 12), April 1, 2023
Junior Level (grades 5 - 8), April 6, 2022

Journal and Conference Reviewer

Optimization
IEEE Internet of Things Journal
IEEE Journal on Selected Areas in Communications
IEEE Transactions on Wireless Communications
IEEE Transactions on Signal Processing
IEEE Transactions on Information Theory
IEEE Transactions on Information Forensics and Security
IEEE/ACM Transactions on Networking
IEEE Transactions on Mobile Computing
IEEE Transactions on Communications
IEEE Transactions on Vehicular Technology
IEEE Transactions on Green Communications and Networking
IEEE Transactions on Control Systems Technology
IEEE Communication Letters
IEEE Wireless Communication Letters
Annals of the Institute of Statistical Mathematics
Network Science Journal
Journal of Communications and Networks
IEEE ISIT
IEEE INFOCOM
IEEE ICASSP
IEEE WCNC
IEEE GLOBECOM
IEEE VTC
IEEE PIMRC
IEEE ICC
ACM MobiHoc
CHINACOM
IEEE SPAWC
ITC
Age of Information Workshop

Departmental and University Services

Graduate Program co-Officer

Department of Electrical and Computer Engineering, Auburn University, 2022 - 2023

Faculty Search Committee Member

Department of Electrical and Computer Engineering, Auburn University, 2022 - 2023
Department of Electrical and Computer Engineering, Auburn University, 2019 - 2020
Department of Electrical and Computer Engineering, Auburn University, 2018 - 2019

Engineering Graduate Curriculum Committee

Samuel Ginn College of Engineering, 2023 - 2024

Presentations

Tutorial Lecture

1. Yin Sun and Elif Uysal, "Age of Information: Providing Fresh Data to Real-time Applications," IEEE PIMRC Conference, Istanbul, Turkey, September 8th, 2019. This is the first-ever tutorial lecture on Age of Information.

Keynotes

1. Yin Sun, "Timely Communications for Remote Inference and Estimation: A First Principles Approach," keynote presentation at the Workshop on Quality, Age, and Value of Information for Tactical Networks (QuAVoI), Boston, October 30, 2023.
2. Yin Sun, "Timely Communications for Remote Inference and Estimation: A First Principles Approach," keynote presentation at the International Workshop on Resource Allocation and Cooperation in Wireless Networks (RAWNET), Singapore, August 24, 2023.

Invited Presentations

1. Yin Sun, "Timely Communications: A Perspective of Data Significance," Information Theory and Applications Workshop (ITA), San Diego, February 14, 2025.
2. Yin Sun, "Remote Inference for Safety," Information Theory and Applications Workshop (ITA), San Diego, February 23, 2024.
3. Yin Sun, "Timely Communications for Remote Estimation and Inference," ACM MobiHoc 2023 Special Session, Washington D.C., October 26, 2023.
4. Yin Sun, "Timely Communications for Remote Inference and Estimation: A First Principles Approach," University of Maryland, July 24, 2023.
5. Yin Sun, "Information Freshness for Real-time Inference and Estimation: A Few Recent Results," Information Theory and Applications Workshop (ITA), San Diego, February 16, 2023.
6. Yin Sun, "How Does Data Freshness Affect Real-time Supervised Learning?" the Ohio State University, December 2, 2022.
7. Yin Sun, "Age of Information (and Beyond): How to Keep Your Data Fresh," Lightning talk series organized by the Tsinghua Alumni Academia Club of North America, November 13, 2022.
8. Yin Sun, "How Does Data Freshness Affect Real-time Supervised Learning?" University of Oulu, October 2022.
9. Yin Sun, "How Does Data Freshness Affect Real-time Supervised Learning? (virtual)" Fudan University, September 2022.
10. Yin Sun, "How Does Data Freshness Affect Real-time Supervised Learning?" Invited Talk at the International Teletraffic Congress (ITC 34), September 2022.
11. Yin Sun, "Status Updates with Priorities: Lexicographic Optimality," Information Theory and Applications Workshop (ITA), San Diego, February 2020.

12. Yin Sun, "From the Age of Information to Sampling Theory," ACM MobiHoc Workshop on the Frontiers of Networks, Catania, Italy, July 2019.
13. Yin Sun, "Fresh Samples through Queues: Age of Information and Remote Estimation," Purdue University, April 2019.
14. Yin Sun, "Fresh Samples through Queues: Age of Information and Remote Estimation," Workshop at ACM MobiHoc TPC Meeting, University of Michigan, March 2019.
15. Yin Sun, "Fresh Samples through Queues: Age of Information and Remote Estimation," University of Maryland, February 2019.
16. Yin Sun, "Fresh Samples through Queues: Age of Information and Remote Estimation," Information Theory and Applications Workshop (ITA), UCSD, February 2019.
17. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," Qualcomm, San Diego, CA, February 2019.
18. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," University of Nevada, Reno, October 2018.
19. Yin Sun, "Information Aging through Queues: A Mutual Information Perspective," Information Theory and Applications Workshop (ITA), UCSD, February 2018.
20. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," Rice University, February 2018.
21. Yin Sun, "Timely Data and Signal Updates," NTT DOCOMO Research Lab, CA, December 2017.
22. Yin Sun, "Timely Data and Signal Updates," Northwestern University, Evanston, IL, July 2017.
23. Yin Sun, "Timely Data and Signal Updates," Sun Yat-sen University, Guangzhou, China, July 2017.
24. Yin Sun, "Timely Data and Signal Updates," Tsinghua University, Beijing, China, July 2017.
25. Yin Sun, "Near Delay-Optimal Job Scheduling and Task Replications over Parallel Machines," INFORMS Applied Probability Society Conference, Kellogg School of Management, July 2017.
26. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," Workshop at ACM MobiHoc TPC Meeting, University of Southern California, March 2017.
27. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," The Ohio State University, Columbus, OH, February 2017.
28. Yin Sun, "Real-Time Sampling of Gauss-Markov Signals," Information Theory and Applications Workshop (ITA), UCSD, February 2017.
29. Yin Sun, "Minimizing Latency in Cloud Systems: Replication Over Parallel Servers," University of Illinois Urbana-Champaign, Champaign, IL, May 2016.
30. Yin Sun, "Minimizing Latency in Cloud Systems: Replication Over Parallel Servers," Arizona State University, Tempe, AZ, April 2016.
31. Yin Sun, "Minimizing Latency in Cloud Systems: Replication Over Parallel Servers," Massachusetts Institute of Technology, Cambridge, MA, April 2016.
32. Yin Sun, "Towards Delay Optimal Data Retrieving in Cloud Storage Systems," Tsinghua University, Beijing, China, May 2015.
33. Yin Sun, "Towards Delay Optimal Data Retrieving in Cloud Storage Systems," Beijing JiaoTong University, Beijing, China, May 2015.
34. Yin Sun, "Towards Delay Optimal Data Retrieving in Cloud Storage Systems," Sun Yat-sen University, Guangzhou, China, May 2015.
35. Yin Sun, "Towards Delay Optimal Data Retrieving in Cloud Storage Systems," Information Theory and Applications Workshop (ITA), UCSD, February 2015.

36. Yin Sun, "Life-Add: A Redesign of WiFi for Smartphones with Battery Life, Throughput and Fairness Improvements," Seoul National University, Seoul, Korea, August 2013.
37. Yin Sun, "Life-Add: A Redesign of WiFi for Smartphones with Battery Life, Throughput and Fairness Improvements," National Tsinghua University, Hsinchu, Taiwan, August 2013.
38. Yin Sun, "Life-Add: A Redesign of WiFi for Smartphones with Battery Life, Throughput and Fairness Improvements," National Taiwan University of Science and Technology, Taipei, Taiwan, August 2013.

Presentations at Conferences and Other Events

1. Yin Sun, "Goal-Oriented Communications: A Perspective of Data Significance," Auburn University, Auburn, AL, April 24, 2024.
2. Yin Sun and Rui Chen, "Goat meat grading with AI," AIFARMS AI Institute Annual Meeting, Creve Coeur, Missouri, October 3, 2024.
3. Yin Sun and Rui Chen, "Demand Forecasting at Alabama Food Pantries Using Machine Learning Methods," Southern Economic Association 93rd Annual Meeting, New Orleans, LA, November 20, 2023.
4. Yin Sun, "Research Experiences for Undergraduates and K-12 student," Engineering Alumni Council Meeting, Auburn University, September 15, 2023.
5. Rui Chen, Yin Sun, and Clarissa Harris, "Mobile AI-Based Goat Meat Grading for Social Disadvantaged Producers in Alabama," Goat Day, Tuskegee University, April 22, 2023.
6. Rui Chen, Yin Sun, "Demand Forecasting at Alabama Food Pantries Using Machine Learning Methods," *Professional Agricultural Workers Conference (PAWC)*, Montgomery, AL, November 15, 2022.
7. Yin Sun, "Sampling of the Wiener Process for Remote Estimation over a Channel with Unknown Delay Statistics," *ACM MobiHoc*, Seoul, South Korea, October 18, 2022.
8. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," Auburn University, Auburn, AL, October 2018.
9. Yin Sun, "Age of Information: Optimizing the Freshness of Real-Time Data," Wireless Seminar Series, Auburn University, Auburn, AL, February 2018.
10. Yin Sun, "Timely Signal and Information Updates," Wireless Advisory Board Meeting, Auburn University, AL, November 2017.

Publications

Summary: 11 preprints, 1 monograph, 3 book chapters, 43 journal papers, and 51 conference papers

Author name with underline was my student or my postdoc; author name with * was an undergraduate student who worked with me; author name with † was a K-12 student who worked with me.

Preprints and Under Review

[1] Mengxue Li, Rui Chen, and **Yin Sun**, "Data-Driven Food Demand Forecasting for Food Pantries in Alabama," submitted, 2025.

[2] Md Kamran Chowdhury Shisher, Adam Piaseczny, **Yin Sun**, and Christopher G. Brinton, "Computation and Communication Co-scheduling for Multi-Task Remote Inference," submitted, 2025.

[3] Hutama Arif Bramantyo, Mukarram Ali Faridi, Rui Chen, Clarissa Harris, and **Yin Sun**, "Explainable Deep Learning for Meat Freshness Detection," submitted, 2025.

[4] Tasmeen Zaman Ornee, Md Kamran Chowdhury Shisher, Clement Kam, and **Yin Sun**, "Remote Safety Monitoring: Significance-Aware Status Updating for Situational Awareness," submitted, 2025. arXiv:2507.09833

[5] Fabio Busacca, Andrea Panebianco, and **Yin Sun**, "Adaptive Underwater Acoustic Communications with Limited Feedback: An AoI-Aware Hierarchical Bandit Approach," submitted, 2025.

[6] Cagri Ari, Md Kamran Chowdhury Shisher, **Yin Sun**, and Elif Uysal, "Goal-Oriented Status Updating for Real-time Remote Inference over Networks with Two-Way Delay," submitted, 2025. arXiv:2410.08706

[7] Tasmeen Zaman Ornee and **Yin Sun**, "Remote Estimation of Gauss-Markov Processes over Multiple Channels: A Whittle Index Policy," submitted to the *IEEE/ACM Transactions on Networking*, 2023.

[8] Hao Chen, Abhishek Gupta, **Yin Sun**, and Ness B. Shroff, "Hoeffding's Inequality for Markov Chains under Generalized Concentrability Condition," submitted to the *Journal of Machine Learning Research*, 2023.

[9] Md Kamran Chowdhury Shisher, Tasmeen Zaman Ornee, and **Yin Sun**, "A Local Geometric Interpretation of Feature Extraction in Deep Feedforward Neural Networks," 2022. arXiv:2202.04632

[10] **Yin Sun**, C. Emre Koksal, and Ness B. Shroff, "Near Delay-Optimal Scheduling of Batch Jobs in Multi-Server Systems," *technical report*, 2017. [pdf]

[11] **Yin Sun**, C. Emre Koksal, and Ness B. Shroff, "On Delay-Optimal Scheduling in Queueing Systems with Replications," *technical report*, 2016. arXiv:1603.07322

Monograph

[1] **Yin Sun**, Igor Kadota, Rajat Talak, and Eytan Modiano, *Age of Information: A New Metric for Information Freshness*, San Rafael, California, USA: Morgan & Claypool Publishers, 2019. **(2020 Auburn Author Award)**

Book Chapters

[1] Tasmeen Zaman Ornee and **Yin Sun**, "Age of Information and Remote Estimation," Chapter 10 in the book *Age of Information: Foundations and Applications*, Edited by N. Pappas, M. A. Abd-Elmagid, B. Zhou, W. Saad, H. S. Dhillon, Cambridge University Press, 2023.

[2] Ahmed M. Bedewy, **Yin Sun**, Sastry Kompella, and Ness B. Shroff, "Sampling and Scheduling for Minimizing Age of Information of Multiple Sources," Chapter 10 in the book *Age of Information: Foundations and Applications*, Edited by N. Pappas, M. A. Abd-Elmagid, B. Zhou, W. Saad, H. S. Dhillon, Cambridge University Press, 2023.

[3] **Yin Sun**, Xiaofeng Zhong, Tsung-Hui Chang, Shidong Zhou, Jing Wang, and Chong-Yung Chi, "Dynamic Spectrum Sharing Between Cooperative Relay and Ad-Hoc Networks: Towards Real-Time Optimal Control," Chapter 15 of *Dynamic Ad-hoc Networks*, IET, August 2013.

Peer-reviewed Journal Papers (published/in press)

[1] Zhongdong Liu, Keyuan Zhang, Bin Li, **Yin Sun**, Y. Thomas Hou, and Bo Ji, "Learning-augmented Online Minimization of Age of Information and Transmission Costs," *IEEE Transactions on Network Science and Engineering*, in press, 2025.

[2] Md Kamran Chowdhury Shisher, **Yin Sun**, and I-Hong Hou, "Timely Communications for Remote Inference," *IEEE/ACM Transactions on Networking (ToN)*, Volume 32, Issue 5, pp. 3824 – 3839, October 2024.

[3] Haoyue Tang, **Yin Sun**, and Leandros Tassiulas, "Sampling of the Wiener Process for Remote Estimation over a Channel with Unknown Delay Statistics," *IEEE/ACM Transactions on Networking (ToN)*, Volume 32, Issue 3, pp. 1920 – 1935, June 2024.

[4] Hao Chen, Abhishek Gupta, **Yin Sun**, and Ness B. Shroff. "Model-Free Change Point Detection for Mixing Processes," *Open Journal of Control Systems (OJ-CSYS)*, Volume 3, pp. 202 – 213, May 2024.

[5] Rahul Singh, Fang Liu, **Yin Sun**, and Ness B. Shroff, "Multi-Armed Bandits with Dependent Arms," *Machine Learning*, Volume 113, Issue 1, pp. 45 – 71, January 2024.

[6] Kevin Yan[†], Md Kamran Chowdhury Shisher, and **Yin Sun**, "A Transfer Learning-Based Deep Convolutional Neural Network for Detection of Fusarium Wilt in Banana Crops," *AgriEngineering*, Volume 5, Issue 4, pp. 2381 – 2394, December 2023.

[7] Jiayu Pan, **Yin Sun**, and Ness B. Shroff, "Sampling for Remote Estimation of the Wiener Process over an Unreliable Channel," *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, Volume 7, Issue 3, Article Number: 60, pp. 1– 41, December 2023.

[8] Jiayu Pan, Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Age-optimal Scheduling over Hybrid Channels," *IEEE Transactions on Mobile Computing*, Volume 22, Issue 12, pp. 7027 – 7043, December 2023.

[9] Md Kamran Chowdhury Shisher, Bo Ji, I-Hong Hou, and **Yin Sun**, "Learning and Communications Co-Design for Remote Inference Systems: Feature Length Selection and Transmission Scheduling," *IEEE Journal on Selected Areas in Information Theory*, Volume 4, pp. 524 – 538, October 2023.

[10] **Yin Sun** and Sastry Kompella, "Age-Optimal Multi-Flow Status Updating with Errors: A Sample-Path Approach," *Journal of Communications and Networks (JCN)*, Volume 25, Issue 5, pp. 570 – 584, October 2023.

[11] Jiayu Pan, Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Optimal Sampling for Data Freshness: Unreliable Transmissions with Random Two-way Delay," *IEEE/ACM Transactions*

on Networking (ToN), Volume 31, Issue 1, pp. 408 – 420, February 2023.

[12] Ali Maatouk, **Yin Sun**, Anthony Ephremides, and Mohamad Assaad, "Timely Updates with Priorities: Lexicographic Age Optimality," *IEEE Transactions on Communications*, Volume 70, Issue 5, pp. 3020 – 3033, May 2022.

[13] Ahmed M. Bedewy, **Yin Sun**, Rahul Singh, and Ness B. Shroff, "Low-Power Status Updates via Sleep-Wake Scheduling," *IEEE/ACM Transactions on Networking (ToN)*, Volume 29, Issue 5, pp. 2129 – 2141, October 2021. **(Recommended for Fast-track Review)**

[14] Tasmeen Zaman Ornee and **Yin Sun**, "Sampling and Remote Estimation for the Ornstein-Uhlenbeck Process through Queues: Age of Information and Beyond," *IEEE/ACM Transactions on Networking (ToN)*, Volume 29, Issue 5, pp. 1962 – 1975, October 2021. **(Recommended for Fast-track Review)**

[15] Roy D. Yates, **Yin Sun**, D. Richard Brown III, Sanjit K. Kaul, Eytan Modiano, and Sennur Ulukus, "Age of Information: An Introduction and Survey," *IEEE Journal on Selected Areas of Communications*, Volume 39, Issue 5, pp. 1183 – 1210, May 2021.

[16] Ahmed M. Bedewy, **Yin Sun**, Sastry Kompella, and Ness B. Shroff, "Optimal Sampling and Scheduling for Timely Status Updates in Multi-source Networks," *IEEE Transactions on Information Theory*, Volume 67, Issue 6, pp. 4019 – 4034, June 2021.

[17] Zhanzhan Zhang, **Yin Sun**, Ashutosh Sabharwal, Zhiyong Chen, and Bin Xia, "Scheduling and Power Allocation Dampens the Effect of Channel Misreporting in Massive MIMO," *IEEE/ACM Transactions on Networking (ToN)*, Volume 28, Issue 6, pp. 2531 – 2544, December 2020.

[18] Xu Du, **Yin Sun**, Ness B. Shroff, and Ashutosh Sabharwal, "Balance Queueing and Retransmission: Latency-Optimal Massive MIMO Design," *IEEE Transactions on Wireless Communications*, Volume 19, Issue 4, pp. 2293 – 2307, April 2020.

[19] **Yin Sun**, Yury Polyanskiy, and Elif Uysal, "Sampling of the Wiener Process for Remote Estimation over a Channel with Random Delay," *IEEE Transactions on Information Theory*, Volume 66, Issue 2, pp. 1118 – 1135, February 2020.

[20] Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "The Age of Information in Multihop Networks," *IEEE/ACM Transactions on Networking (ToN)*, Volume 27, Issue 3, pp. 1248 – 1257, June 2019.

[21] Baran Tan Bacinoglu, **Yin Sun**, Elif Uysal, and Volkan Mutlu, "Optimal Status Updating with a Finite-Battery Energy Harvesting Source," *Journal of Communications and Networks (JCN) – Special Issue on the Age of Information*, Volume 21, Issue 3, pp. 280 – 294, June 2019.

[22] **Yin Sun** and Benjamin Cyr*, "Sampling for Data Freshness Optimization: Non-linear Age Functions," *Journal of Communications and Networks (JCN) – Special Issue on the Age of Information*, Volume 21, Issue 3, pp. 204 – 219, June 2019. **(2021 JCN Best Paper Award)**

[23] Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Minimizing the Age of Information through Queues," *IEEE Transactions on Information Theory*, Volume 65, Issue 8, pp. 5215 – 5232, August 2019.

[24] Xingyu Zhou, Fei Wu, Jian Tan, **Yin Sun**, and Ness B. Shroff, "Designing Low-Complexity Heavy-Traffic Delay-Optimal Load Balancing Schemes: Theory to Algorithms," *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, Volume 1, Issue 2, article Issue 39, pp. 1 – 30, December 2017.

[25] **Yin Sun**, Elif Uysal-Biyikoglu, Roy D. Yates, C. Emre Koksal, and Ness B. Shroff, "Update or Wait: How to Keep Your Data Fresh," *IEEE Transactions on Information Theory*, Volume 63, Issue 11, pp. 7492 – 7508, November 2017.

[26] Fei Wu, **Yin Sun**, Yang Yang, Kannan Srinivasa, and Ness B. Shroff, "Constant Delay and Constant Feedback Moving Window Network Coding for Wireless Multicast: Design and Asymptotic Analysis," *IEEE Journal on Selected Areas in Communications*, Volume 33, Issue 2, pp. 127 – 140, February 2015.

[27] **Yin Sun**, C. Emre Koksal, and Ness B. Shroff, "Capacity of Compound MIMO Gaussian Channels with Additive Uncertainty," *IEEE Transactions on Information Theory*, Volume 59, Issue 12, pp. 8267 – 8274, December 2013.

[28] Xiujun Zhang, **Yin Sun**, Xiang Chen, Shidong Zhou, Jing Wang, and Ness B. Shroff, "Distributed Power Allocation for Coordinated Multipoint Transmissions in Distributed Antenna Systems," *IEEE Transactions on Wireless Communications*, Volume 12, Issue 5, pp. 2281 – 2291, May 2013.

[29] Haohao Qin, **Yin Sun**, Tsung-Hui Chang, Xiang Chen, Chong-Yung Chi, Ming Zhao, and Jing Wang, "Power Allocation and Time-Domain Artificial Noise Design for Wiretap OFDM with Discrete Inputs," *IEEE Transactions on Wireless Communications*, Volume 12, Issue 6, pp. 2717 – 2729, June 2013.

[30] Fei He, **Yin Sun**, Limin Xiao, Xiang Chen, Chong-Yung Chi, and Shidong Zhou, "Capacity Region Bounds and Resource Allocation for Two-Way OFDM Relay Channels," *IEEE Transactions on Wireless Communications*, Volume 12, Issue 6, pp. 2904 – 2917, June 2013.

[31] **Yin Sun**, Xiaofeng Zhong, Tsung-Hui Chang, Shidong Zhou, Jing Wang, and Chong-Yung Chi, "Optimal Real-time Spectrum Sharing between Cooperative Relay and Ad-hoc Networks," *IEEE Transactions on Signal Processing*, Volume 60, Issue 4, pp. 1971 – 1985, April 2012.

[32] **Yin Sun**, Árpád Baricz, and Shidong Zhou, "Corrections to "Unified Laguerre polynomial-series-based distribution of small-scale fading envelopes,"" *IEEE Transactions on Vehicular Technology*, Volume 60, Issue 1, pp. 347 – 349, January 2011.

[33] Yuan Gao, **Yin Sun**, Chunhui Zhou, Xin Su, Xibin Xu, Shidong Zhou, "Accelerating the 3GPP LTE System Level Simulation with NVidia CUDA," *Applied Mechanics and Materials*, vols. 58-60, pp. 1596 – 1601, 2011.

[34] **Yin Sun**, Xiaofeng Zhong, Xiang Chen, Shidong Zhou, and Jing Wang, "Ergodic capacity of decode-and-forward relay strategies over general fast fading channels," *Electronics Letters*, Volume 47, Issue 2, pp. 148 – 150, January 2011.

[35] András Szilárd, Árpád Baricz, and **Yin Sun**, "The generalized Marcum Q-function: an orthogonal polynomial approach," *Acta Universitatis Sapientiae Mathematica*, Volume 3, Issue 1, pp. 60-76, 2011.

[36] **Yin Sun**, Árpád Baricz, and Shidong Zhou, "On the monotonicity, log-concavity and tight bounds of the generalized Marcum and Nuttall Q-functions," *IEEE Transactions on Information Theory*, Volume 56, Issue 3, pp. 1166 – 1186, March 2010.

[37] Árpád Baricz and **Yin Sun**, "New bounds for the generalized Marcum Q-function," *IEEE Transactions on Information Theory*, Volume 55, Issue 7, pp. 3091 – 3100, July 2009.

[38] Árpád Baricz, and **Yin Sun**, "Bounds for the generalized Marcum Q-function," *Applied Mathematics and Computation*, Volume 217, pp. 2238 – 2250, 2010.

[39] You Xu, **Yin Sun**, Yunzhou Li, Yifei Zhao, and Hongxing Zou, "Joint sensing period and transmission time optimization for energy-constrained cognitive radios," *EURASIP Journal on Wireless Communications and Networking*, Volume 2010, Article ID 818964, 16 pages, 2010.

[40] Wei Chen, Yunzhou Li, and **Yin Sun**, "Realizations of system level simulation platform of LTE based on Matlab (in Chinese)," *Communications Technology*, Volume 43, Issue 5, pp. 170-175, May 2010.

[41] **Yin Sun**, Árpád Baricz, Ming Zhao, Xibin Xu, and Shidong Zhou, "Approximate average bit error probability for DQPSK over fading channels," *Electronics Letters*, Volume 45, Issue 23, November 5, 2009.

[42] Zhou Zhong, Yunzhou Li, **Yin Sun**, and Jing Wang, "Check node degree-based modified min-sum decoding algorithm with classification for LDPC codes (in Chinese)," *Journal of Tsinghua University (Science and Technology)*, Volume 49, Issue 1, pp. 45 – 48, 2009.

[43] **Yin Sun** and Árpád Baricz, "Inequalities for the generalized Marcum Q-function," *Applied Mathematics and Computation*, Volume 203, pp.134 – 141, September 2008.

Peer-reviewed Conference Papers (published/in press)

[1] Keyuan Zhang, **Yin Sun**, Bo Ji, "Multimodal Remote Inference," *IEEE MASS*, 2025.

[2] Sirin Chakraborty and **Yin Sun**, "Send Pilot or Data? Leveraging Age of Channel State Information for Throughput Maximization," *IEEE INFOCOM Age and Semantics of Information Workshop (ASoI Workshop)*, 2025.

[3] Md Kamran Chowdhury Shisher, Adam Piaseczny, **Yin Sun**, and Christopher G. Brinton, "Computation and Communication Co-scheduling for Timely Multi-Task Inference at the Wireless Edge," *IEEE INFOCOM*, 2025. Acceptance rate 18.7%

[4] Sirin Chakraborty and **Yin Sun**, "Timely Remote Estimation with Memory at the Receiver," *58th Annual Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 2024. **(Invited Paper)**

[5] Clement Kam, Joseph P. Macker, and **Yin Sun**, "Reinforcement Learning Over Noisy Channels: An Information Bottleneck Approach," *IEEE MILCOM*, 2024.

[6] Cagri Ari, Md Kamran Chowdhury Shisher, Elif Uysal, and **Yin Sun**, "Goal-Oriented Communications for Remote Inference under Two-Way Delay with Memory," *IEEE ISIT*, 2024.

[7] Zhongdong Liu, Keyuan Zhang, Bin Li, **Yin Sun**, Y. Thomas Hou, and Bo Ji, "Learning-augmented Online Minimization of Age of Information and Transmission Costs," *IEEE INFOCOM Age and Semantics of Information Workshop (ASoI Workshop)*, 2024.

[8] Md Kamran Chowdhury Shisher and **Yin Sun**, "On the Monotonicity of Information Aging," *IEEE INFOCOM Age and Semantics of Information Workshop (ASoI Workshop)*, 2024.

[9] Tasmeen Zaman Ornee, Md Kamran Chowdhury Shisher, Clement Kam, and **Yin Sun**, "Context-aware Status Updating: Wireless Scheduling for Maximizing Situational Awareness in Safety-critical Systems," *IEEE MILCOM Workshop*, 2023.

[10] Jiayu Pan, **Yin Sun**, and Ness B. Shroff, "Sampling for Remote Estimation of the Wiener Process over an Unreliable Channel," *ACM SIGMETRICS/IFIP Performance*, 2024.
Acceptance rate 15%.

[11] Tasmeen Zaman Ornee and **Yin Sun**, "A Whittle Index Policy for the Remote Estimation of Multiple Continuous Gauss-Markov Processes over Parallel Channels," *ACM MobiHoc*, 2023.
Acceptance rate 21.9%.

[12] Haoyue Tang, **Yin Sun**, and Leandros Tassiulas, "Sampling of the Wiener Process for Remote Estimation over a Channel with Unknown Delay Statistics," *ACM MobiHoc*, 2022.
Acceptance rate 19.8%.

[13] Md Kamran Chowdhury Shisher and **Yin Sun**, "How Does Data Freshness Affect Real-time Supervised Learning?" *ACM MobiHoc*, 2022.
Acceptance rate 19.8%.

[14] Jiayu Pan, Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Optimizing Sampling for Data Freshness: Unreliable Transmissions with Random Two-way Delay," *IEEE INFOCOM*, 2022.
Acceptance rate 19.9%.

[15] Tasmeen Zaman Ornee and **Yin Sun**, "Performance Bounds for Sampling and Remote Estimation of Gauss-Markov Processes over a Noisy Channel with Random Delay," *IEEE SPAWC Conference – Special Session on the Age of Information*, 2021. **(Invited Paper)**

[16] Jiayu Pan, Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Minimizing Age of Information via Scheduling over Heterogeneous Channels," *ACM MobiHoc*, 2021.
Acceptance rate 20.1%.

[17] Md Kamran Chowdhury Shisher, Heyang Qin, Lei Yang, Feng Yan, and **Yin Sun**, "The Age of Correlated Features in Supervised Learning based Forecasting," *IEEE INFOCOM Age of Information Workshop (AoI Workshop)*, 2021.

[18] Ahmed M. Bedewy, **Yin Sun**, Rahul Singh, and Ness B. Shroff, "Optimizing Information Freshness using Low-Power Status Updates via Sleep-Wake Scheduling," *ACM MobiHoc*, 2020. **(Runner-up for Best Paper Award)**
Acceptance rate 15%.

[19] Baran Tan Bacinoglu, **Yin Sun**, and Elif Uysal, "On the Trackability of Stochastic Processes based on Causal Information," *IEEE ISIT*, 2020.

[20] Ali Maatouk, **Yin Sun**, Anthony Ephremides, and Mohamad Assaad, "Status Updates with Priorities: Lexicographic Optimality," *IEEE/IFIP WiOpt*, 2020.

[21] Ahmed M. Bedewy, **Yin Sun**, Sastry Kompella, and Ness B. Shroff, "Age-optimal Sampling and Transmission Scheduling in Multi-source Systems," *ACM MobiHoc*, 2019.
Acceptance rate 23.7%.

[22] Tasmeen Zaman Ornee and **Yin Sun**, "Sampling for Remote Estimation through Queues: Age of Information and Beyond," *IEEE/IFIP WiOpt*, 2019. **(Best Paper Award)**

[23] Xingyu Zhou, Fei Wu, Jian Tan, **Yin Sun**, and Ness B. Shroff, "Designing Low-Complexity Heavy-Traffic Delay-Optimal Load Balancing Schemes: Theory to Algorithms," *ACM Sigmetrics*, 2018.
Acceptance rate 20%.

[24] **Yin Sun** and Benjamin Cyr*, "A Dynamic Jamming Game for Real-Time Status Updates," *IEEE SPAWC Conference – Special Session on the Age of Information*, 2018. **(Invited Paper)**

[25] Baran Tan Bacinoglu, **Yin Sun**, Elif Uysal-Biyikoglu, and Volkan Mutlu, "Achieving the Age-Energy Tradeoff with a Finite-Battery Energy Harvesting Source," *IEEE ISIT*, 2018.

[26] Yuanzhang Xiao and **Yin Sun**, "A Dynamic Jamming Game for Real-Time Status Updates," *IEEE INFOCOM Age of Information Workshop (AoI Workshop)*, 2018.

[27] **Yin Sun**, Elif Uysal-Biyikoglu, and Sastry Kompella, "Age-Optimal Updates of Multiple Information Flows," *IEEE INFOCOM Age of Information Workshop (AoI Workshop)*, 2018.

[28] Jiahui Li, **Yin Sun**, Limin Xiao, Shidong Zhou, and Ashutosh Sabharwal, "How to Mobilize mmWave: A Joint Beam and Channel Tracking Approach," *IEEE ICASSP*, 2018.

[29] Zhanzhan Zhang, **Yin Sun**, Ashutosh Sabharwal, and Zhiyong Chen, "Impact of Channel State Misreporting on Multi-user Massive MIMO Scheduling Performance," *IEEE INFOCOM*, 2018.
Acceptance rate 19.2%.

[30] Fei Wu, **Yin Sun**, Lu Chen, Jiaqi Xu, Kannan Srinivasan, and Ness B. Shroff, "High Throughput Low Delay Wireless Multicast via Multi-Channel Moving Window Codes," *IEEE INFOCOM*, 2018.

Acceptance rate 19.2%.

[31] Jiahui Li, **Yin Sun**, Limin Xiao, Shidong Zhou, and C. Emre Koksal, "Analog Beam Tracking in Linear Antenna Arrays: Convergence, Optimality, and Performance," *Asilomar Conference*, 2017.

[32] **Yin Sun**, Yury Polyanskiy, and Elif Uysal-Biyikoglu, "Remote Estimation of the Wiener Process over a Channel with Random Delay," *IEEE ISIT*, 2017.

[33] Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Age-Optimal Information Updates in Multihop Networks," *IEEE ISIT*, 2017.

[34] Fangzhou Chen†, **Yin Sun**†, Yiping Qin, C. Emre Koksal, "Checks and Balances: A Low-Complexity High-Gain Uplink Power Controller for CoMP," *IEEE Globecom*, 2016. † Co-primary authors.

[35] Ahmed M. Bedewy, **Yin Sun**, and Ness B. Shroff, "Optimizing Data Freshness, Throughput, and Delay in Multi-Server Information-Update Systems," *IEEE ISIT*, 2016.

[36] **Yin Sun**, Elif Uysal-Biyikoglu, Roy D. Yates, C. Emre Koksal, and Ness B. Shroff, "Update or Wait: How to Keep Your Data Fresh," *IEEE INFOCOM*, 2016.
Acceptance rate 18.2%.

[37] **Yin Sun**, Zizhan Zheng, C. Emre Koksal, Kyu-Han Kim, and Ness B. Shroff, "Provably Delay Efficient Data Retrieving in Storage Clouds," *IEEE INFOCOM*, 2015.
Acceptance rate 19.3%.

[38] Shengbo Chen, **Yin Sun**, Ulas Can Kozat, Longbo Huang, Prasun Sinha, Guanfeng Liang, Xin Liu and Ness B. Shroff, "When Queueing Meets Coding: Optimal-Latency Data Retrieving Scheme in Storage Clouds," *IEEE INFOCOM*, 2014.
Acceptance rate 19.5%.

[39] **Yin Sun**, C. Emre Koksal, Kyu-Han Kim, and Ness B. Shroff, "Scheduling of Multicast and Unicast Services under Limited Feedback by using Rateless Codes," *IEEE INFOCOM*, 2014.
Acceptance rate 19.5%.

[40] Shengbo Chen†, Tarun Bansal†, **Yin Sun**†, Prasun Sinha, and Ness B. Shroff, "Life-Add: Lifetime Adjustable Design for WiFi Networks with Heterogeneous Energy Supplies," *IEEE/IFIP WiOpt*, 2013. †Co-primary authors. **(Best Student Paper Award, 2013)**

[41] **Yin Sun**, C. Emre Koksal, and Ness B. Shroff, "Capacity of Compound MIMO Gaussian Channels with Additive Uncertainty," *IEEE ISIT*, 2013.

[42] **Yin Sun**, C. Emre Koksal, Sung-Ju Lee, and Ness B. Shroff, "Network Control without CSI using Rateless Codes for Downlink Cellular Systems," *IEEE INFOCOM*, 2013.
Acceptance rate 17.4%.

[43] Ye Yang, Jianhua Ge, Tsung-Hui Chang, and **Yin Sun**, "Noncoherent Amplify-and-Forward Cooperative OFDM in Block Fading Channels," *Wireless Communications Symposium (WCSP)*,

2012.

[44] Haohao Qin†, **Yin Sun**†, Xiang Chen, Ming Zhao, and Jing Wang, "Optimal Power Allocation for OFDM-based Wire-Tap Channels With Arbitrary Distributed Inputs," *WiCON*, 2011. †Co-primary authors.

[45] Yuan Gao, **Yin Sun**, Chunhui Zhou, Xin Su, Xibin Xu, Shidong Zhou, "Accelerating the 3GPP LTE System Level Simulation with NVidia CUDA, " *ITMS*, 2011.

[46] Haohao Qin, Xiang Chen, **Yin Sun**, Ming Zhao, and Jing Wang, "Optimal Power Allocation for Joint Beamforming and Artificial Noise Design in Secure Wireless Communications," *IEEE ICC*, 2011.

[47] **Yin Sun**, Xiaofeng Zhong, Yunzhou Li, Shidong Zhou, and Xibin Xu, "Spectrum sharing between cooperative relay and ad-hoc networks: Dynamic transmissions under computation and signaling limitations," *IEEE ICC*, 2011.

[48] **Yin Sun**, Yunzhou Li, Xiaofeng Zhong, Shidong Zhou, and Xibin Xu, "Resource Allocation for the Cognitive Coexistence of Ad-hoc and Cooperative Relay Networks," *IEEE ICC*, 2010.

[49] **Yin Sun**, Yuanzhang Xiao, Ming Zhao, Xiaofeng Zhong, Shidong Zhou, and Ness B. Shroff, "Joint power and channel resource allocation for F/TDMA decode-and-forward relay networks," *IEEE Globecom*, 2009.

[50] **Yin Sun**, and Shidong Zhou, "Tight bounds of the generalized Marcum Q-function based on log-concavity," *IEEE Globecom*, 2008.

[51] **Yin Sun**, Chunhui Zhou, Xiujun Zhang, Shidong Zhou, and Xibin Xu, "A cooperative transmission strategy for uplink cellular systems," *ICT*, 2008.

PATENT

1. **Yin Sun**, C. Emre Koksal, Sung-Ju Lee, Ness B. Shroff, "Wireless Transmitter to optimize throughput by controlling time-average block sizes of signals to receivers," US10003437B2, 2018.

OUTREACH ACTIVITIES

1. Yin Sun took the students of the "Applied Statistics and Machine Learning" course from Auburn University and Tuskegee University to attend the Goat Day event for an educational field trip on April 12, 2025.
2. Yin Sun and his student visited the Tender Love & Care Veterans Farm on April 26, 2024.
3. Yin Sun took the students of the "Applied Statistics and Machine Learning" course from Auburn University and Tuskegee University to attend the Goat Day event for an educational field trip on April 20, 2024.
4. Yin Sun took the students of the "Applied Statistics and Machine Learning" course from Auburn University and Tuskegee University to visit the Auburn United Methodist Church food pantry for an educational field trip on February 2, 2024.
5. Yin Sun took the students of the "Applied Statistics and Machine Learning" course from Auburn University and Tuskegee University to visit the Auburn United Methodist Church food pantry for an educational field trip on April 21, 2023.
6. Yin Sun co-advised a student, Suchit Bapatla, from an NSF REU program hosted by Tuskegee University, from June 2023 - July 2023.

7. Yin Sun supervised a student, Kevin Yan, from Auburn High School for his Science and Engineering project "Leveraging Convolutional Neural Networks, Deep Learning, and Computer Vision in a Novel Approach to Rapid Banana Disease Detection" from May 2022 - present.
8. Yin Sun served as a judge for the Alabama Science and Engineering Fair, Senior Level (grades 9 - 12), on April 1, 2023.
9. Yin Sun served as a judge for the Alabama Science and Engineering Fair, Junior Level (grades 5 - 8), on April 6, 2022.