Ying Li | Associate Professor

5852 Mayflower Hill – Waterville, ME 04901 – USA

+1 (207) 859 5852 • ying.li@colby.edu

http://www.cs.colby.edu/yingli/

Education

University of New Hampshire — **Durham, NH**
Ph.D., Computer Science — *2015*
Dissertation Title: Intermittently Connected Delay-tolerant Wireless Sensor Networks
Advisor: Radim Bartos

Hubei University of Technology — **Wuhan, China**
M.E., Computer Application Technology — *2007*
M.E. Thesis Project: Chime Music and Dancing Simulation System

Hubei University of Technology — **Wuhan, China**
B.E., Computer Science and Technology — *2004*
Senior Project: Secondary Development Based on MAPGIS

Appointments

Department of Computer Science, Colby College — **Waterville, ME**
Associate Professor — *2022–present*

Department of Computer Science, Colby College — **Waterville, ME**
Assistant Professor — *2015–2022*

InterOperability Laboratory (UNH-IOL), University of New Hampshire — **Durham, NH**
Senior Research and Development Lead — *2010–2014*

Computer Network Research Group, University of New Hampshire — **Durham, NH**
Research Assistant — *2008–2009*

Peer-Reviewed Publications

Journal Papers

1. **Y. Li** and R. Bartos. Connectedness-Aware Copy-Adaptive Routing Protocol in Intermittently Connected Networks. Springer International Journal of Wireless Information Networks, Volume 25, Issue 3, September 2019, Pages 230-242. [doi: 10.1007/s10776-019-00433-y]

2. **Y. Li** and R. Bartos, and J. Swan. Dacksis: An efficient transport protocol with acknowledgment-assisted storage management for intermittently connected wireless sensor networks. Elsevier

Journal of Pervasive and Mobile Computing, Volume 13, August 2014. Pages 272-285. [doi: 10.1016/j.pmcj.2014.03.003]

3. **Y. Li** and R. Bartos. A survey of protocols for intermittently connected delay-tolerant wireless sensor networks. Elsevier Journal of Network and Computer Applications, Volume 41, May 2014, Pages 411-423, ISSN 1084-8045. [doi: 10.1016/j.jnca.2013.10.003]

Conference Papers

1. **Y. Li**, C. Li*, J. Chen*, and C. Roinou*. Energy-Aware Multi-Agent Reinforcement Learning for Collaborative Execution in Mission-Oriented Drone Networks. The 31st International Conference on Computer Communications and Networks (ICCCN), July 2022 (* indicates Colby undergraduate researchers)

2. **Y. Li** and C. Liang. Energy-aware Trajectory Planning Model for Mission-oriented Drone Networks. The 15th Annual IEEE International Systems Conference (SYSCON), pages 1-7, April 2021 [doi: 10.1109/SysCon48628.2021.9447109]

3. **Y. Li**, S. Hassairi*, T. Satloff*, E. Burns*, C.P. Majgaard*, and C. Liang. Energy Efficient Strategy for Uninterrupted Mission Execution via Automatic Drone Replacement. The 14th Annual IEEE International Systems Conference (SYSCON), pages 1-7, August 2020 [doi: 10.1109/SysCon47679.2020.9275880] (* indicates Colby undergraduate researchers)

4. C. Liang, C. Liu, **Y. Li**, and Z. Liang. Erasure Coding Based Efficient Communication for Internet of Things. The 14th Annual IEEE International Systems Conference (SYSCON), pages 1-6, August 2020 [dio: 10.1109/SysCon47679.2020.9275842]

5. **Y. Li**, R. Bartos, and C. Liang. Are Containers Coupled with NetEm a Reliable Tool for Performance Study of Network Protocols? The 50th Annual IEEE Region 3 Southeast Conference (SoutheastCon), pages 1-7, April 2019 [doi: 10.1109/SoutheastCon42311.2019.9020466]

6. C. Liang, C. Liu, and **Y. Li**. Discovering Messengers with Erasure Coding for Communication in Wireless Ad hoc Networks. The 16th Annual IEEE Consumer Communications & Networking Conference (CCNC), pages 1-6, January 2019 [doi: 10.1109/CCNC.2019.8651824]

7. **Y. Li** and R. Bartos. Interaction Based Routing Algorithm for Opportunistic Mobile Social Networks. The 14th Annual IEEE Consumer Communications & Networking Conference (CCNC), pages 492-497, January 2017 [doi:10.1109/CCNC.2017.7983157]

8. **Y. Li** and R. Bartos. Efficient regional information dissemination protocol for intermittently connected mobile wireless sensor networks. In Proceedings of The 47th Annual IEEE Region 3 Southeast Conference (SoutheastCon), pages 1-8, March 2016. [doi: 10.1109/SECON.2016.7506745]

9. **Y. Li** and R. Bartos. CACAR: Connectedness-aware copy-adaptive routing scheme for inter-

mittently connected wireless sensor networks. In Proceedings of The 17th International Conference on Distributed Computing and Networking (ICDCN), pages 1-4, January 2016. [doi: 10.1145/2833312.2833459]

10. **Y. Li**, R. Bartos, and M. Charpentier. Performance analysis of local algorithms in large-scale disconnected networks. In Proceedings of The 12th Annual IEEE Consumer Communications & Networking Conference (CCNC), pages 431-436, January 2015. [doi: 10.1109/CCNC.2015.7158014]

11. **Y. Li**, B. Noseworthy, J. Laird, T. Winters, and T. Carlin. A study of precision of hardware time stamping packet traces. In Proceedings of The International IEEE Symposium on Precision Clock Synchronization for Measurement, Control and Communication (ISPCS), pages 102-107, September 2014. [doi: 10.1109/ISPCS.2014.6948700]

12. **Y. Li**, R. Bartos, and J. Swan. Transport protocol with acknowledgement-assisted storage management for intermittently connected wireless sensor networks. In Distributed Computing and Networking, volume 7730 of Lecture Notes in Computer Science, pages 57-71, Springer Berlin Heidelberg, 2013. [doi: 10.1007/978-3-642-35668-1_5]

13. **Y. Li** and R. Bartos. Energy efficient reactive store-and-forward protocol for intermittently connected networks. In Proceedings of The IEEE Conference on Global Telecommunications Conference (GLOBECOM), pages 563-568, December 2013. [doi: 10.1109/GLOCOM.2013.6831131]

14. M. Charpentier, R. Bartos, and **Y. Li**. Local algorithms for robust mission realization in large-scale disconnected networks. In Proceedings of The 11th IEEE International Symposium on Network Computing and Applications (NCA), pages 244-248, August 2012. [doi: 10.1109/NCA.2012.48]

15. M. Charpentier, R. Bartos, and **Y. Li**. Interaction patterns for resilient intermittently- connected static sensor networks. In Proceedings of The IEEE Conference on Military Communications Conference (MILCOM), pages 581-586, October 2010. [doi: 10.1109/MILCOM.2010.5680441]

Other Publications

- **Y. Li** and Q. Chen. Application of 3D Visual Reality of Campus with OpenGL Technology And 3DS MAX. Journal of Wuhan Institute of Shipbuilding Technology, Issue 02, 2007, Page 37-40, ISSN 1671-8100. (in Chinese)

On-going Research Projects

- Leveraging reinforcement learning to optimize the trajectory of drones in mission-oriented drone networks
- Evaluating frameworks for incorporating computing across the curriculum
- Building a public digital platform providing access to the digital Chinese magazine database and an

interface to analyze the digital humanities data

Professional Posters and Blogs

- Poster for the research project, Intermittently Connected Delay-tolerant Wireless Sensor Networks, at NeTS Early Career Workshop '15, Washington DC, July 2015
- Poster for the paper, Energy efficient reactive store-and-forward protocol for intermittently connected networks, at University of New Hampshire Graduate Research Conference 2014
- **Y. Li**. IOL INTACT^{TM}: BGP Conformance Scripting Made Easy. Technical blog in The InterOp Insider, https://www.iol.unh.edu/blog/2013/12/18/

Awards, Grants, and Fellowships

- CUE Ethics: Collaborative Research: Evaluating Frameworks for Incorporating Computing Across the Curriculum, Co-principal investigator, awarded by NSF-IUSE program, 2019
- PLab Faculty Development Workshop Travel Grant, NSF Workshop Grant, May 2019
- Colby Natural Sciences Division Grant, 2016-17
- NeTS Early Career Workshop'15 Travel Grant, NSF Workshop Grant, July 2015
- Dissertation Year Fellowship, University of New Hampshire, 2014-2015
- IOL Star Award, InterOperability Laboratory, University of New Hampshire, January 2012
- Dean's Scholarship, University of New Hampshire, 2007, 2008, 2009

Oral Presentations

- "Energy-Aware Multi-Agent Reinforcement Learning for Collaborative Execution in Mission-Oriented Drone Networks" The 31st International Conference on Computer Communications and Networks, 2022 (virtual)
- "Energy-aware Trajectory Planning Model for Mission-oriented Drone Networks" The 15th Annual IEEE International Systems Conference, 2021 (virtual)
- "Energy Efficient Strategy for Uninterrupted Mission Execution via Automatic Drone Replacement" The 14th Annual IEEE International Systems Conference, 2020 (virtual)
- "Are Containers Coupled with NetEm a Reliable Tool for Performance Study of Network Protocols?" The 50th Annual IEEE Region 3 Southeast Conference, 2019

- "Interaction Based Routing Algorithm for Opportunistic Mobile Social Networks", The 14th Annual IEEE Consumer Communications & Networking Conference, 2017
- "Efficient regional information dissemination protocol for intermittently connected mobile wireless sensor networks", The 47th Annual IEEE Region 3 South East Conference, 2016
- "Connectedness-aware copy-adaptive routing scheme for intermittently connected wireless sensor networks", International Conference on Distributed Computing and Networking, 2016
- "Performance analysis of local algorithms in large-scale disconnected networks", University of New Hampshire Graduate Research Conference 2015
- "Intermittently connected delay-tolerant wireless sensor networks", Graduate Students Seminar, Department of Computer Science, University of New Hampshire, 2014
- "Energy efficient reactive store-and-forward protocol for intermittently connected networks", IEEE Conference on Global Telecommunications Conference 2013

Departmental Service Activities

- Associate Chair of Computer Science Department, 2019 - present
- Member of the search committee for two assistant visiting professors in computer science, 2019
- Member of the search committee for an assistant visiting professor in computer science, 2019
- Member of the search committee for a tenure track positions in computer science, 2018
- Member of the search committee for two tenure track positions in computer science, 2017
- Member of the search committee for an open-rank professor in computer science, 2016
- Member of the search committee for an assistant visiting professor in computer science, 2016

Institutional Service Activities

- Member of the Davis Connect Funding Committee, 2020 – present
- Member of the CUSRR Committee, 2020 – 2021
- Member of the ACFPP Committee, 2020 – 2021
- Member of the Access Liaison Program, 2019–2020

- Member of the Admissions and Financial Aid Committee, 2017–2018, 2019–2020
- Member of the OCS advisory committee, 2016–2017
- Member of the search committee for an assistant visiting professor in Psychology, 2018
- Member of the search committee for an assistant visiting professor in Physics and Astronomy, 2017

Professional Service Activities

Proposal Reviewer

- NSF Panelist
- NSF Ad-hoc Reviewer

Journal Manuscript Reviewer

- IEEE Communications Surveys and Tutorials
- IEEE Transactions on Computational Social Systems
- Elsevier Journal of Network and Computer Applications
- Elsevier Journal of Expert Systems With Applications
- Springer International Journal of Wireless Information Networks
- MDPI Journal of Applied Sciences
- MDPI Journal of Electronics
- MDPI Journal of Sensor and Actuator Networks
- MDPI Journal of Sensors
- SAGE International Journal of Distributed Sensor Networks
- Bentham International Journal of Sensors, Wireless Communications and Control
- EURASIP Journal on Wireless Communications and Networking
- Far East Journal of Electronics and Communications

Conference Paper Reviewer

- IEEE Region 3 Southeast Conference
- IEEE International Conference on Communications
- International IEEE Symposium on Precision Clock Synchronization for Measurement, Control and Communication
- International Conference on Electronics, Communications and Networks

Theses Reviewer

- External Reviewer of Research Higher Degree Theses, The University of Queensland

Technical Program Committee

- IEEE International Conference on Human-Machine Systems, 2021
- IEEE International Systems Conference (SysCon), 2020
- IEEE International Conference on Human-Machine Systems, 2020
- IEEE International Conference on Networking, Sensing and Control, 2020

Program Chair

- The Annual ACM Southeast Conference (ACMSE), Graduate Research Symposium, 2020

Session Chair

- The 31st International Conference on Computer Communications and Networks
- The Annual IEEE Region 3 Southeast Conference 2016
- The 17th International Conference on Distributed Computing and Networking
- The 12th Annual IEEE Consumer Communications & Networking Conference

Supports to Under-representative Students and Local K-12 and Higher STEM Education

- Reviewer for Maine Space Grant Consortium Program, 2020
- 3D Printing Design Challenge Judge, Maine 3D Printing Design Challenge and Expo, 2020

- Program Chair, New England Celebration of Women in Computing, 2019
- Poster Judge, Maine State Science Fair, 2017, 2018, 2019
- Poster Judge, ACM Student Research Competition at the Grace Hopper Celebration of Women in Computing, 2016

Courses Taught

Fall 2021

- CS 232: Computer Organization (Two Lecture Sessions), Enrolled 39
- CS 333: Advanced Computer Networks (Lecture), Enrolled 10

Spring 2021

- CS 331: Computer Networks (Lecture), Enrolled 25
- CS 333: Programming Languages (Lecture), Enrolled 22

Fall 2020

- CS 232: Computer Organization (Two Lecture Sessions), Enrolled 53, Co-teacher Stephanie Taylor
- CS 333: Programming Languages (Lecture), Enrolled 27

Spring 2020

- CS 333: Programming Languages (Lecture), Enrolled 30
- CS 431: Advanced Computer Networks (Lecture), Enrolled 10

Fall 2019

- CS 333: Programming Languages (Lecture), Enrolled 25
- CS 331: Computer Networks (Lecture), Enrolled 15

Spring 2018

- CS 231: Data Structures and Algorithms (Two Lecture Sessions), Enrolled 55, Co-teacher Bruce Maxwell

Fall 2017

- CS 333: Programming Languages (Two Lecture Sessions), Enrolled 42
- CS 232: Computer Organization (Lecture), Enrolled 27, Co-teacher Bruce Maxwell

Spring 2017

- CS 431: Advanced Computer Networks (Lecture), Enrolled 10
- CS 231: Data Structures and Algorithms (Two Lab Sessions), Enrolled 35, Co-teacher Zadia Codabux
- CS 151: Computational Thinking: Visual Media Applications (Two Lab Sessions), Enrolled 41, Co-teacher Stephanie Taylor

Fall 2016

- CS 333: Programming Languages (Lecture), Enrolled 20
- CS 331: Computer Networks (Lecture), Enrolled 14
- CS 232: Computer Organization (Lecture), Enrolled 15, Co-teacher Stephanie Taylor

Spring 2016

- CS 232: Computer Organization (Lecture), Enrolled 33, Co-teacher Bruce Maxwell
- CS 151: Computational Thinking: Visual Media Applications (Two Lab Sessions), Enrolled 59, Co-teacher Dale Skrien

Fall 2015

- CS 333: Programming Languages (Lecture), Enrolled 34
- CS 231: Data Structures and Algorithms (Two Lab Sessions), Enrolled 56, Co-teacher Dale Skrien

Mentored Student Projects

Honors Thesis

- Multi-Agent Reinforcement Learning for Mission-Oriented Drone Networks: Individual Reward vs Shared Reward. Changling Li '22
- NFT Sneaker Marketplace Design, Testing, and Challenges. Chris Zhu '22
- An Exploration of Customized Personal Digital Assistants. Sawyer Strong '22
- Wireless Dead Drop System. Max Perrello '21

- Develop Envol – A Web Platform that Allows People Flying from Different Locations to Find the Cheapest Common Destination for All Members. Selim Hassairi '21
- Correcting Pedestrian Dead Reckoning with Monte Carlo Localization Boxed for Indoor Navigation. Akira Murphy '17

Independent Study

- [20-21] A Full-stack Development for A Course and Professor Evaluation Website. Changling Li '22
- [20-21] Natural Language Processing with Peer Group Extraction from Proxy Statements. Chris Zhu '22
- [20-21] Dig into the Operating System: Threads, Memory Management, and Scheduling, Allen Ma '21
- [20-21] Game Design Application and Documentation. Izge Bayyurt '22
- [20-21] A Web-based GUI Development for A Visual Programming Language. Nick Peterson '22
- [19-20] A Linguistic Approach: Sentiment Analysis and Profanity in Fake News Detection. Mingyang Li '22
- [17-18] Drone Simulation Development.Theo Satloff '19 and C.P. Majgaard '18
- [17-18] Guided Learning Computer Networks. Haoyu Song '18

Summer Research

- [20-21]Optimize Drone Trajectory Using Reinforcement Learning. Changling Li '22 and Jiyao Chen'22
- [19-20] Machine Learning for Natural Language Processing. Mingyang Li '22
- [17-18] Autonomous Ad-hoc Drone Simulation. Selim Hassairi '21 and Emmett Burns '21
- [16-17]Mobile Robotics Network Research. Arthur Y Mukumbi '19 and Jiaheng Hu '20
- [15-16]Navigating an iPhone without Connectivity. Akira Murphy '17, Liwei Jiang '19, and Shangcheng Jiang '17

Research in Semesters

- [20-21] Soliciting Literatures in Leveraging Machine Learning in Drone Networks. Christine Roinou '22 and Changling Li '22
- [20-21] Understanding Unsynchronization Issues of Remote Learning. Changling Li '22

- [19-20] Connecting Jackal to a Hidden Network of Colby. Chris Zhu '22
- [19-20] Understanding the Data Pipeline between the Drone and Ground Control System. Mingyang Li '22
- [19-20] Learn the Ground Robot – Jackal. Chloe Zhang '22
- [18-19] Understanding the Correlation between Ground Control System and On-board Control System of Drones. Selim Hassairi '21
- [16-17] Building Drones using DJI Frame, Navio 2, and Raspberry Pi. Theo Satloff '19

Conferences, Workshops, and Programs Attended

2022

- The 31st International Conference on Computer Communications and Networks (ICCCN), July 2022, Virtual

2021

- Digital Humanities at Oxford Summer School (DHOxSS), University of Oxford, UK, July 2021, Virtual
- Digital Humanities Summer Institute (DHSI), University of Victoria, CA, June 2021, Virtual
- NSF CUE Ethics Summer Workshop, Waterville, ME, June, 2021
- ICC 2021 WIE-WICE Forum, June, 2021, Virtual
- The 15th Annual IEEE International Systems Conference (SYSCON), April 2021, Virtual
- Cultural Competence in Computing (3C) Follows Program, February - June 2021, Virtual

2020

- The 14th Annual IEEE International Systems Conference (SYSCON), August 2020, Virtual
- The 4th ACSIC Symposium on Frontiers in Computing (SOFC), July 2020, Virtual
- The Annual ACM Southeast Conference (ACMSE), April 2020, Virtual
- 2020 Maine 3D Printing Design Challenge and Expo, Fairfield, ME, March 2020
- Leading and Influencing as a Department Chair Conference, Boston, MA, February 2020

- NSF CUE.NEXT Workshop, Denver, CO, January 2020

2019

- NSF PLab Faculty Development Workshop, Marietta, GA, May 2019
- The 50th Annual IEEE Region 3 South East Conference (IEEE SoutheastCon), Huntsville, AL, April 2019
- 2019 Maine State Science Fair (MSSF), Brunswick, ME, March 2019

2018

- 2018 Maine State Science Fair (MSSF), Waterville, ME, March 2018

2017

- 2017 Maine State Science Fair (MSSF), Waterville, ME, March 2017
- New England Celebration of Women in Computing (NECWiC), Portland, ME, March 2017
- The 14th Annual IEEE Consumer Communications & Networking Conference (CCNC), Las Vegas, NV, January 2017

2016

- Grace Hopper Celebration of Women in Computing (GHC), Houston, TX, October 2016
- The 47th Annual IEEE Region 3 South East Conference 2016 (SoutheastCon 2016), Norfolk, VA, April 2016
- ACM Technical Symposium on Computer Science Education (SIGCSE), Memphis, TN, March 2016
- The 17th International Conference on Distributed Computing and Networking (ICDCN), Singapore, January 2016

2015

- Grace Hopper Celebration of Women in Computing (GHC), Houston, TX, October 2015
- NeTS Early Career Workshop, Washington DC, July 2015
- The 12th Annual IEEE Consumer Communications & Networking Conference (CCNC), Las Vegas, NV, January 2015

Before 2015

- The IEEE Conference on Global Telecommunications Conference (GLOBECOM), Atlanta, GA, December 2013
- The 11th IEEE International Symposium on Network Computing and Applications (NCA), Boston, MA, August 2012