

Victoria Manfredi

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Education

- Ph.D.** Computer Science, University of Massachusetts Amherst *September 2009*
Advisor: Jim Kurose. Title: Sensor Control and Scheduling Strategies for Sensor Networks.
- M.S.** Computer Science, University of Massachusetts Amherst *May 2005*
- B.A.** Computer Science, Neuroscience, Smith College *May 2002*
magna cum laude with highest honors in computer science.

Professional Experience

- Visiting Professor, Dept of ECE** *September 2019 to May 2020*
McGill University, Montréal, Québec, Canada
- Assistant Professor of Computer Science** *July 2016 to Present*
Wesleyan University, Middletown, Connecticut, USA
- Scientist II** *October 2015 to May 2016*
Raytheon BBN Technologies, Cambridge, Massachusetts, USA
- Scientist I** *October 2011 to October 2015*
Raytheon BBN Technologies, Cambridge, Massachusetts, USA
- Computing Innovation Fellow** *September 2009 to September 2011*
Boston University, Boston, Massachusetts, USA. Mentor: Mark Crovella
- Visiting Researcher** *January 2007 to June 2007*
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

Refereed Conference Publications

- [14] Quantifying Unlinkability in Multi-hop Wireless Networks**
V. Manfredi, Cameron Donnay Hill
In Proc. of *International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, 2020
- [13] SHARE: Scalable Hybrid Adaptive Routing for dynamic multi-hop Environments**
V. Manfredi, Will Tetteh, Ram Ramanathan, Regina Hain, Dorene Ryder
In Proc. of *IEEE Conference on Ubiquitous Intelligence and Computing (UIC)*, 2017
Awarded Best Industry Paper
- [12] Rebound: Decoy Routing on Asymmetric Routes Via Error Messages**
Daniel Ellard, Christine Jones, V. Manfredi, W. Timothy Strayer, Bishal Thapa, Megan Van Welie, Alden Jackson
In Proc. of *IEEE Local Computer Networks Conference (LCN)*, 2015
- [11] Scalability Analysis of Grid-Based Multi-Hop Wireless Networks**
Rahul Urgaonkar, V. Manfredi, Ram Ramanathan
In Proc. of *International Conference on COMMunication Systems and NETWORKS (COM-SNETS)*, 2013

- [10] Understanding Stateful vs. Stateless Communication Strategies for Ad hoc Networks**
V. Manfredi, Mark Crovella, Jim Kurose
 In Proc. of *International Conference on Mobile Computing and Networking (MobiCom)*, 2011
- [9] Separation of Sensor Control and Data in Closed-Loop Sensor Networks**
V. Manfredi, Jim Kurose, Naceur Malouch, Chun Zhang, Michael Zink
 In Proc. of *IEEE Conference on Sensor, Mesh and Ad hoc Communications and Networks (SECON)*, 2009
- [8] Robust Routing in Dynamic MANETS**
V. Manfredi, Robert Hancock, Jim Kurose
 In Proc. of *Annual Conference of the International Technology Alliance (ACITA)*, 2008
- [7] Scan Strategies for Adaptive Meteorological Radars**
V. Manfredi, Jim Kurose
 In Proc. of *Neural Information Processing Systems (NIPS)*, 2007
- [6] Switching Kalman Filters for Prediction and Tracking in an Adaptive Meteorological Sensing Network**
V. Manfredi, Sridhar Mahadevan, Jim Kurose
 In Proc. of *IEEE Conference on Sensor, Mesh and Ad hoc Communications and Networks (SECON)*, 2005
- [5] Learning Hierarchical Models of Activity**
Sarah Osentoski, V. Manfredi, Sridhar Mahadevan
 In Proc. of *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2004

Refereed Workshop Publications

- [4] MultiFlow: Cross-Connection Decoy Routing using TLS 1.3 Session Resumption**
V. Manfredi, Pi Songkuntham
 In Proc. of *8th USENIX Workshop on Free and Open Communications on the Internet (FOCI)*, 2018
- [3] Hierarchical Reinforcement Learning Using Graphical Models**
V. Manfredi, Sridhar Mahadevan
 In Proc. of *ICML Workshop on Rich Representations for Reinforcement Learning*, 2005
- [2] Meteorological Command and Control: An End-to-end Architecture for a Hazardous Weather Detection Sensor Network**
Michael Zink, David Westbrook, Sherief Abdallah, Bryan Horling, Vijay Lakamraju, Eric Lyons, V. Manfredi, Jim Kurose, Kurt Hondl
 In Proc. of *MobiSys Workshop on End-to-End, Sense-and-Respond Systems, Applications, and Services*, 2005
- [1] Nonlinear Credit Assignment for Musical Sequences**
Judy Franklin, V. Manfredi
 In Proc. of *International Workshop on Intelligent Systems Design and Applications (ISDA)*, 2002

Awarded Grants and Contracts

Office of Naval Research (ONR) contract: Probe-Observe-Knowledge-Engine (POKE), \$680k. I was technical lead for modeling engine. PI: Karen Haigh. August 2015 to March 2016.

Defense Advanced Research Programs (DARPA) contract: Scalable Heterogeneous Adaptive Routing in contested Environments (SHARE), \$1.8M. I was technical lead for routing. PI: Ram Ramanathan. August 2014 to 2016.

National Science Foundation (NSF) grant, #CNS-1117039: Understanding Communication Strategies for Ad hoc Networks, \$390,853. Primary author of proposal. Would have provided me 3 years of postdoctoral funding. PI: Mark Crovella. August 2011 to July 2014.

Patents

Destination address rewriting to block peer-to-peer communications

Inventors: Daniel Ellard, Alden Jackson, Christine Jones, Josh Karlin, V. Manfredi, David Mankins, Tim Strayer

United States 9,723,023. Issued August 2017

Destination address control to limit unauthorized communications

Inventors: Daniel Ellard, Alden Jackson, Christine Jones, Josh Karlin, V. Manfredi, David Mankins, Tim Strayer

United States 9,237,027. Issued January 2016

Honors

2019	Alternate, AAUW American Postdoctoral Fellowship
2017	Best Industry Paper at IEEE Conference on Ubiquitous Intelligence and Computing
2012-2016	Raytheon BBN Business Development Awards
2013	Part of 1st place team in Raytheon BBN-wide Business Development Initiative
2011-2012	Tomlinson Fellowship for Postdoctoral Research at McGill University (declined)
2009-2011	CCC/CRA Computing Innovation Fellowship for Postdoctoral Research
2006	NSF International Research and Education in Engineering Supplement
2003-2006	NSF Graduate Research Fellowship
2002	Smith College Alumnae Scholarship (for graduate study)
2002	Bert Mendelson Prize for Excellence in Computer Science, Smith College
2002	Phi Beta Kappa Honor Society inductee
2002	Sigma Xi Honor Society inductee
2000	Schultz Foundation Undergraduate Research Fellowship, Smith College
1998-2002	First Group Scholar (top 10% of class), Smith College

Talks and Outreach

Deep Reinforcement Learning for Communication in Wireless Networks.

Samsung Research, Montréal, Québec, April 1, 2020. Host: Xue Liu.

Reinforcement Learning for Routing in Computer Networks, Guest lecture for COMP597.

McGill University, Montréal, Québec, February 19, 2020. Host: Xue Liu.

Quantifying Unlinkability in Multi-hop Networks

McGill University, Montréal, Québec, November 19, 2019. Host: Mark Coates.

MultiFlow: Cross-Connection Decoy Routing using TLS 1.3 Session Resumption

FOCI, Baltimore, Maryland. August, 2018.

SHARE: Scalable Hybrid Adaptive Routing for dynamic multi-hop Environments

UIC, Fremont, California. August, 2017.

Decoy Routing on Asymmetric Routes Via Error Messages

University of Connecticut, Storrs, Connecticut, March 31, 2017. Host: Bing Wang.

McGill University, Montréal, Québec, January 13, 2017. Host: Mark Coates.

New England Networking and Systems Day, Boston, Massachusetts. October 19, 2015.

A Brief Tour of Network Science

REU Data Science Lunch Seminar, University of Massachusetts Amherst. July 9, 2015.

Raytheon BBN Technologies and Life After Grad School

Computer Science Women's Group, University of Massachusetts Amherst. April 22, 2015.

Rethinking Communication in Ad hoc Networks

University of Massachusetts Boston, Boston, Massachusetts. February 2014. Host: Duc Tran.

Understanding Stateful vs Stateless Communication Strategies for Ad hoc Networks

MobiCom, Las Vegas, Nevada, September 2011.

Understanding Communication Strategies for Dynamic Networks

INRIA, Sophia Antipolis, France. Host: Giovanni Neglia, May 2011.

Choosing a Network Formation Strategy

Deutsche Telekom Laboratories, Berlin, Germany. Host: Ruben Merz, October 2010.

Robust Routing in Dynamic Networks

ETHZ, Zurich, Switzerland. Host: Bernhard Plattner, July 2009.

Boston University, Boston, Massachusetts. Host: Mark Crovella, June 2009.

Machine Learning and Friends Lunch, University of Massachusetts Amherst, February 2009.

Separation of Sensor Control and Data in Closed-Loop Sensor Networks

SECON, Rome Italy, June 2009.

Robust Routing in Dynamic MANETs

ACITA, London, United Kingdom, September 2008.

Switching Kalman Filters for Prediction and Tracking in an Adaptive Meteorological Sensing Network

SECON, Santa Clara, California, September 2005.

Machine Learning and Friends Lunch, University of Massachusetts Amherst. October 2005.

Hierarchical Reinforcement Learning Using Graphical Models

ICML Workshop on Rich Representations for Reinforcement Learning, Bonn, Germany, August 2005.

Conference Organization

Workshops Co-Chair, *IEEE International Symposium on a World of Wireless, Mobile and Multi-media Networks (WoWMoM)*, Cork, Ireland, June 15-18, 2020.

Posters and Demos Co-Chair, *IEEE International Conference on Sensing, Communication and Networking (SECON)*, Boston, MA, June 10-13, 2019.

Publication Co-Chair, *WoWMoM*, Washington, DC, June 9-12, 2019.

Publication Co-Chair, *WoWMoM*, Chania, Greece, June 12-15, 2018.

Publication Co-Chair, *WoWMoM*, Macau, China, June 12-15, 2017.

Publication Chair, *WoWMoM*, Coimbra, Portugal, June 21-24, 2016.

Publication Chair, *WoWMoM*, Boston, Massachusetts, June 14-17, 2015.

Technical Program Committee Chair, *International Workshop on Wireless Mesh and Ad-hoc Networking (WiMAN)*, Shanghai, China, August 7, 2014.

Technical Program Committees

WoWMoM, Pisa, Italy, June 7-11, 2021.

AAAI Conference on Artificial Intelligence, February 2-9, 2021.

IFIP Networking, Paris, France, June 22-26, 2020.

IEEE Sarnoff Symposium, Princeton, NJ, September 23-24, 2019.

IFIP Networking, Warsaw, Poland, May 20-22, 2019.

IFIP Networking, Zurich, Switzerland, May 14-16, 2018.

IEEE International Conference on Ubiquitous Intelligence and Computing (UIC), San Francisco, August 4-8, 2017.

Workshop on Multimedia Streaming in Information-/Content-Centric Networks (MuSIC), Hong Kong, July 10, 2017.

WiMAN, Waikolo, Hawaii, August 4, 2016.

IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), Algorithms and Performance Analysis Track, Washington, DC, May 26-28, 2016.

IEEE International Performance Computing and Communications Conference (IPCCC), Las Vegas, Nevada, December 9-11, 2016.

IEEE International Conference on Sustainable Computing and Communications (SustainCom), Atlanta, GA, October 8-10, 2016.

MuSIC, San Francisco, CA, April 11, 2016.

MASS Workshop on Content-Centric Networking (CCN), Dallas, Texas, October 19, 2015.

IEEE Vehicular Technology Conference (VTC) - Fall, Track on Ad hoc and Sensor Networks, Boston, Massachusetts, September 6-9, 2015.

IEEE International Military Communications Conference (MILCOM), Track 2, Tampa, Florida, October 26-28, 2015.

WoWMoM, Boston, Massachusetts, June 14-17, 2015.

MILCOM, Track 3, Baltimore, Maryland, October 6-8, 2014

International Conference on Computer Communication Networks (ICCCN), Track on Wireless LAN, Ad Hoc and Mesh Networks (WAM), Shanghai, China, August 4-7, 2014.

Internet Measurement Conference (IMC), Barcelona, Spain, October 23-24, 2013.

ICCCN, Track on Wireless LAN, Ad Hoc and Mesh Networks (LAMN), Munich, Germany, July 30 to August 2, 2012.

ICCCN, Network Algorithms and Performance Evaluation (NAPE), Maui, Hawaii, July 31 to August 4, 2011.

Funding Panels

Participant on panel to review grants for *NSF CISE*, 2014.

Participant on panel to review grants for *NSF CISE*, 2013.

Editorial Boards

July 2019 to Present. Editor, *Ad Hoc Networks*, Elsevier.

December 2016 to Present. Executive Editor, *Transactions on Emerging Telecommunications Technologies (ETT)*, Wiley.

External Reviewer

Conferences. *INFOCOM 2017, INFOCOM 2018.*

Journals. *Journal on Selected Areas in Communication, Wireless Networks, Transactions on Mobile Computing.*

Teaching Experience

COMP 332: Computer Networks, Wesleyan University. *Instructor, Fall 2016 (as COMP 360), Spring 2018, Fall 2018.*

COMP 211: Computer Science 1, Wesleyan University. *Instructor, Spring 2017 (with Norman Danner), Fall 2017, Spring 2019.* This is an undergraduate course that is the first core course required for the computer science major.

CMPSCI 453: Computer Networking, University of Massachusetts Amherst. *Co-instructor (with John Ridgway), Fall 2008.* I gave 8 of 27 lectures, made up assignments and exam questions, and held office hours.

CMPSCI 689: Machine Learning, University of Massachusetts Amherst. *Teaching assistant (instructor was Sridhar Mahadevan), Fall 2004.* This is a graduate course overviewing the field of machine learning. I graded homework and exams, and held office hours.

Undergraduate Student Tutorials at Wesleyan University

Spring 2019. *Frederick Corpuz, Lex Liu, Tsun Lok Kwan, Winona Murphy, Chris Wang, Elliot Williams.* Topic: Rust programming language.

Spring 2019. *Tong Kong, Yuan Sun.* Topic: deep reinforcement learning.

Spring 2018. *Aqila Putri.* Topic: security protocols on the Internet.

Spring 2018. *Celine Tao.* Topic: computer networks.

Spring 2018. *Tomas Tucek.* Topic: measures of anonymous communication.

Spring 2018. *Caroline Liu.* Topic: routing protocols in flying ad hoc networks.

Fall 2017 *Caroline Liu.* Topic: routing protocols in flying ad hoc networks.

Fall 2017. *Fabien Bessez and Victoria Davids.* Topic: security protocols used on the Internet.

Fall 2017. *Samantha Ong.* Topic: machine learning methods with an emphasis on deep learning.

Spring 2017. *Francesca Peña.* Topic: of artificial intelligence and decision-making.

Spring 2017. *Pi Songkuntham.* Topic: privacy and anonymity on the Internet.

Undergraduate Research Advisees

Summer 2019, Spring 2020. *Chris Wang,* Wesleyan University. Topic: Circumventing Internet censorship.

Summer 2019. *Yuan Sun,* Wesleyan University. Topic: Deep neural nets for networking.

Summer 2019. *Tong Kong,* Wesleyan University. Topic: Deep neural nets for networking.

Summer 2019. *Naina Vig*, Wesleyan University. Topic: measures of anonymous communication.

January 2017 to May 2018. *Pi Songkuntham*, Wesleyan University. Topic: privacy and anonymity on the Internet.

Summer 2017. *Kathleen McLaughlin*, Smith College graduate. Topic: flying ad hoc networks.

External Reviewer for PhD Thesis

June 2017. *Shohreh Shaghaghian*, McGill University. Adviser: Mark Coates.

Reader for Undergraduate Theses

April 2019. *Han Yang Tay*, Wesleyan University. Advisers: Psyche Loui, Saray Shai.

April 2018. *Samantha Ong*, Wesleyan University. Adviser: Dan Licata.

April 2017. *Emily Black*, Wesleyan University. Adviser: Dan Licata.

April 2017. *Sam Stern*, Wesleyan University. Adviser: Danny Krizanc.

Wesleyan and Departmental Service

March 2019 to April 2019. Wesleyan University, part of search committee for ITS' new director of user services.

March 2018 to Present. Wesleyan University, Wesfiles Working Group.

September 2016 to May 2019. Wesleyan University, Department of Mathematics and Computer Science, Departmental Advisory Committee (DADCOM/CADCOM).

Wesleyan Outreach

Spring 2018. Natural Sciences and Mathematics (NSM) lunch talk, Wesleyan University. Title: Fighting Anti-Censorship on the Internet, March 30, 2018.

Fall 2016 to Present. Faculty mentor to Wesleyan Track & Field team via Athletics Partnering Program.

Fall 2016. Guest lecture, CIS 221: Research Frontiers in the Sciences, College of Integrative Sciences, Wesleyan University. Lecture title: A Brief Tour of Network Science, November 4, 2016.

Other Service

February 2017 to February 2019. Networking Networking Women (N2Women) Membership co-chair.

December 2014 to December 2015. Raytheon BBN Technologies, organization of Science Development Program Social Networks Seminar bringing in external speakers.

December 2012 to December 2014. Raytheon BBN Technologies, organization of Tech Talks seminar series for internal speakers in networking department.