

Mai Vu

Electrical and Computer Engineering
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APPOINTMENTS

9/22 –	Professor	Electrical and Computer Engineering, Tufts University, MA
9/21 –	Adjunct Professor	Computer Science, Tufts University, MA
1/16 – 8/16	Visiting Assoc. Prof.	Electrical Engineering, Stanford University, CA
1/13 – 8/22	Associate Professor	Electrical and Computer Engineering, Tufts University, MA
1/09 – 12/12	Assistant Professor	Electrical and Computer Engineering, McGill University, CAN
9/06 – 12/08	Postdoc Lecturer	School of Engineering Applied Sciences, Harvard Univ., MA

EDUCATION

PhD	Stanford University , Electrical Engineering <i>Exploiting Transmit Channel Side Information in MIMO Wireless Systems</i>	July 2006
MS	Stanford University , Electrical Engineering	July 2006
MSE	University of Melbourne , Australia, Electrical Engineering <i>Channel Equalization in Wireless Communication using Multiple Transmit Antennas</i>	Aug 1999
BE	Royal Melbourne Institute of Technology , Australia, Computer Systems Eng. First class honor	Nov 1997

RESEARCH INTERESTS

- Wireless communications
- Millimeterwave and THz communications
- Energy-efficient communications
- Beyond-5G and 6G systems
- Machine learning techniques and applications
- Applied convex optimization

H-index: 27 (based on Google scholar)

Total citation: 3400 (based on Google scholar)

RESEARCH GRANTS

At Tufts (2013 –)

- *National Science Foundation*, “SWIFT: Transceiver and algorithms for multiband mobile communications in co-existence with passive users at millimeter wave spectra,” NSF#2127648, 2021 – 2024, Co-PI.
- *National Science Foundation*, “HDR TRIPODS: Building the Foundation for a Data-Intensive Studies Center,” NSF#1934553, 2019 – 2022, Senior personnel. Member of the core faculty on T-TRIPDS institute.
- *National Science Foundation*, “Transient characteristics and interference modeling for millimeter-wave communications,” NSF#1908552, 2019 – 2022, PI. Collaborative proposal with New York University, Co-PI Prof. Rappaport.
- *National Science Foundation*, “Robust 3D Beamforming using Electronically Steerable Metamaterial Antennas for Millimeter wave Communications,” NSF#1808912, 2018 – 2022, PI.
- *Office of Naval Research*, “Link-State and Priority Based Relay Coding for Wireless Networks,” Grant N00014-14-1-0645, 2014 – 2017, sole PI.
- *Tufts University*, “Cooperative transmission in multitier LTE networks with small cells,” Faculty Research Fund, *School of Arts and Sciences, School of Engineering*, 2013, sole PI.

At McGill (2009 – 2012) (non-transferable to Tufts)

- “Distributed coding for multicast networks” (PI)
The *Fonds Québécois de la Recherche sur la Nature et les Technologies* (FQRNT)
Team Research Project, 2012-2015
- “Distributed communications in cognitive wireless networks” (sole PI)
The *Natural Sciences and Engineering Research Council* of Canada (NSERC)
Discovery Grant, PI, 2009-2014
Additional Funding for Early Career Researchers 2011-14
- “Distributed Energy-Aware Information Infrastructure: A Path to Robust and Sustainable IT” (co-PI)
NSERC Strategic Project Grant, 2009-2012
- “Realistic cooperative communications in wireless networks” (sole PI)
The *Fonds Québécois de la Recherche sur la Nature et les Technologies* (FQRNT)
New Researcher Grant, 2010-2012
- “Infrastructure for wireless network communications research” (sole PI)
Canada Foundation for Innovation (CFI) Leader Opportunity Fund, 2010

RESEARCH ADVISING

Postdoctoral scholar

- Dr. Byungju Lim, started April 2022.

Current students

- Boriana Boiadjieva (PhD, started Sept 2019)
- Qing Lyu (PhD, started Jan 2021)
- Beier Li (PhD, starting Sep 2022)

Graduated students

<u>Name</u>	<u>Degree, school and year</u>	<u>Thesis title</u>
Alireza Alizadeh	PhD Tufts, Jan 2021	<i>Load Balancing User Association and Handover in Millimeter-Wave Enabled Wireless Networks</i>
Rafia Malik	PhD Tufts, Dec 2019	<i>Wireless Power Transfer In Relay Systems And Edge Computing Networks</i>
Hussain ElKotby	PhD Tufts, Dec 2017	<i>Cellular Networks Performance Under User-Assisted Relaying</i>
Fanny Parzys	PhD ETS Montreal, June 2015, co-advised	<i>A Joint Analysis of Coding Schemes and Relay Deployment for Energy Efficient Cellular Networks</i>
Ahmad Abu Al Haija	PhD McGill, May 2015	<i>Cooperative Communication for Relay and Multiple Access Channels: Design, Optimization and Performance Analysis</i>
Yao Tang	MEng McGill, Aug 2013	<i>Coding for Relay Networks</i>
Peng Zhong	MEng McGill, Aug 2012	<i>Coding Schemes for the Two-Way Relay Channels</i>
Zhuohua Wu	MEng McGill, Aug 2012	<i>Transmission Schemes for the Causal Cognitive Interference Channels</i>

TEACHING EXPERIENCE

- Tufts University
 - EE 107 – *Communication Systems* Falls 2021-20, 2018 – 2013
 - EE108 – *Wireless Communications* Springs 2018, 2015
 - EE 109 – *Convex Optimization* Springs 2022, 2021, 2019, 2017, 2014
 - EE 194NIT – *Network Information Theory* Fall 2015, Springs 2014, 2013
- McGill University
 - ECSE 612 – *Multiuser Communications* (new course) Winters 2011, 2010
 - ECSE 425 – *Computer Organization and Architecture* Winter 2011, Fall 2009

- ECSE 512 – *Digital Signal Processing I* Falls 2011, 2010
- Harvard University
 - ES 156 – *Signals and Systems* Springs 2008, 2007
 - ES 250 – *Information Theory* Fall 2007
 - ES 150 – *Probability with Applications in Electrical Eng.* Spring 2007

UNIVERSITY AND DEPARTMENTAL SERVICES

- Serving on the University Faculty Senate, 2020-23.
- Serving on the SoE Committee on Academic Standing and Honors, 2020-21.
- Served on the University AI TaskForce, 2020-21.
- Served on the university Faculty Research Awards Committee (FRAC) committee, 2016-17.
- Served on the university committee for Undergraduate Admission and Financial Aids, 2014-15.
- Serving as ECE departmental liaison for the university committee on Work/Life Balance 2013-19.
- Participated in prospective engineering panel by Tufts Undergraduate Admission Office, Fall 2014.
- Took part in undergraduate activities organized by Tufts Asian/American center, Fall 2013.
- Serving on the ECE graduate committee since 2013.
- Wrote award recommendation letters for undergraduate students (Springs of 2019, 2018, 2016, 2015)
- Co-organized the ECE departmental seminar series, 2018-19 (team of 2 faculty)
- Pre-major advisor to 8 freshman 2020-21.
- Pre-major advisor to 9 freshman 2018-19.
- Pre-major advisor to 9 freshman 2014-15.
- Coordinated ECE graduate admission Fall 2015 (team of 2 faculty)
- Coordinated the ECE departmental PhD Qualifying Exam, 2017-18 (team of 2 faculty)
- Coordinated the ECE departmental PhD Qualifying Exam, 2013-14 (team of 2 faculty)
- Served on ECE PhD Qualifying Exam committee, Spring 2013.

INDUSTRY EXPERIENCE

- Beceem Communications (now Broadcom), Santa Clara, CA** 6/04 – 9/04
Researcher intern, helped analyze and develop precoding algorithm, link adaptation, and space-time code applications in WiMax.
- Compaq Corporation (now HP), Cupertino, CA** 6/01 – 9/01
Hardware designer intern, designed the PCI-X bus modules.
- Synopsys Inc., Mountain View, CA** 6/00 – 9/00
Hardware verification intern, verified the SCI in the micro-controller MC68HC11.

PROFESSIONAL MEMBERSHIP AND SERVICES

- Senior member, IEEE (2013 –)
- Co-Chair of the Technical Program Committee, IEEE Communication Theory Workshop (CTW), Hualien, Taiwan, July 2023.
- Steering member, Ad Hoc Committee on Mission Critical Communications, IEEE VTS (2021 –)
- Editor for the *IEEE Transactions on Wireless Communications* (Feb 2013 – Dec 2016).
- Co-Organizer, *2017 New England Workshop on Software Defined Radio (NEWSDR'17)*, the 7th annual workshop by Boston SDR group, Breed Memorial Hall, Tufts University, June 1-2, 2017.

- Online <http://ecewp.ece.wpi.edu/wordpress/sdr-boston/workshops/newsdr-17/>
- Panelist on multiple NSF grant review panels:
 - CCSS Panel, February 2021
 - CIF:Small SPCOM Panel, January 2018
 - NeTS Wireless CRII Panel, October 2017
 - CIF Networking Panel, March 2016
 - WiFiUS Panel, September 2014
- Grant reviewer for multiple proposals under the *Natural Sciences and Engineering Research Council (NSERC)* of Canada:
 - NSERC Discovery Grant program, 2022
 - NSERC Discovery Grant program, 2018
 - NSERC Discovery Grant program, 2017
 - NSERC Discovery Grant program, 2010
- Journal manuscripts reviewer:
 - IEEE Transactions on Wireless Communications,
 - IEEE Transactions on Communications,
 - IEEE Communications Letters,
 - IEEE Transactions on Information Theory,
 - IEEE Transactions on Signal Processing,
 - IEEE Transactions on Vehicular Technology,
 - IEEE Journal of Selected Areas in Communications.
- Technical Program Committee, Workshop on Mission Critical Communications, IEEE Vehicular Technology Conference (VTC 2022 Spring), Helsinki, Finland, June 2022.
- Conference Technical Program Committee (TPC) member:
 - ISIT 2022, ICC 2022, Globecom 2015, Globecom 2014, PIMRC 2014, ICC 2013, WCNC 2013, ICC 2012, PIMRC 2011, Globecom 2011, ICC 2011, CWIT 2011, GlobeCom 2010, ICCE 2010 and 2008, GlobeCom 2009, Crowncom 2009 and 2008, VTC-Fall09, VTC-Fall08.
- Conference papers reviewer:
 - ICC, Globecom, VTC, WCNC, SPAWC, PIMRC, IWCMC, ISIT, Infocom, CCNC, DySPAN.

INVITED TALKS

- “*User Association and Handover in 5G and Beyond Wireless Mobile Networks*,” Verizon, Boston MA, Feb 2022.
- “*User Association and Wireless Charging in 5G and Beyond Systems*,” UMass Boston’s Engineering Seminar, Boston, MA, Mar 2020.
- “*Algorithmic construction of convolutional codes with unequal error protection*,” Information Theory and Applications Workshop, UC San Diego, CA, Feb 2020.
- “*User Association in mmWave MIMO Networks*,” North Eastern University, Boston, MA, April 2018.
- “*User-assisted relaying for mmWave5G networks*,” Toyota Research, Mountain View, CA, June 2016.
- “*User-assisted relaying for mmWave5G networks*,” Google, Mountain View, CA, May 2016.
- “*Relay optimization and application in cellular networks*,” Ericsson Research, San Jose, CA, May 2016.
- “*Interference modeling and user-assisted relaying for mmWave 5G networks*,” Intel Corporation, Santa Clara, CA, Mar 2016.
- “*Link regimes and adaptation of two-way relaying in wireless fading channels*,” Seminar at MIT Network Coding and Reliable Communications Group, Cambridge, MA, Nov. 2015.

- *"Uplink User-Assisted Cooperative Relaying for Cellular Networks,"* Qualcomm Research, San Diego, Feb 2015.
- *"Relay Coding in Network Communications: Design, Deployment and Analysis,"* MIT Lincoln Laboratory, Lexington, MA, Aug 2014.
- *"Uplink User-Assisted Distributed Relaying for Cellular Communications,"* DMIMO Summit, Worcester Polytechnic Institute (WPI), Worcester, MA, Aug 2014.
- *"Uplink User-Assisted Cooperative Relaying for Cellular Communications,"* Cisco Corporation, Sunnyvale, CA, July 2014.
- *"Uplink Mobile-to-Mobile Cooperation: Spectral Efficiency and Outage Performance,"* Qualcomm New England, Boxborough, MA, Feb 2014.
- *"Half-Duplex Cooperative Communication with Partial Decode-Forward Relaying,"* Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Nov 2010.
- *"Cognitive Wireless Networks,"* Department of Electrical and Computer Engineering, McGill University, Montreal, Jul 2008.
- *"Exploiting Transmit Channel Side Information in MIMO Wireless using Linear Precoders,"* Broadcom Corporation, Sunnyvale, CA, Sep 2005.
- *"Linear Precoding for MIMO Channels Exploiting Channel Mean and Transmit Correlation,"* Intel Corporation, Santa Clara, CA, Oct 2004.
- *"Precoder Using Combined Channel Estimate and Long-term Statistics,"* Intel Corporation, Santa Clara, CA, Oct 2004.

POSTER PRESENTATIONS

- H. Elkotby and **M. Vu**, *"Interference Modeling for 5G Networks with Millimeter Wave Beamforming,"* the Kickoff Workshop for the NSF Millimeter-Wave RCN, Washington DC, Dec. 2016.
- H. Elkotby and **M. Vu**, *"Interference Modeling for 5G Networks with Millimeter Wave Beamforming,"* the 3rd Brooklyn 5G Summit, New York University, Brooklyn, NY, Apr. 2016.

PATENTS

- P1. Alizadeh, Alireza and **Vu, Mai**, *"Network user association,"* US Provisional Patent application (#62851034), filed May 2019.
- P2. **Vu, Mai**, *"System, Method and Apparatus for Multi-Input Multi-Output Communications over Per-Transmitter Power-Constrained Channels,"* US Patent 10,447,358, issued Oct 2019.
- P3. **Vu, Mai**, *"System, method and apparatus for multi-input multi-output communications over per-transmitter power-constrained channels,"* U.S. Patent 9,503,170, issued Nov. 2016.
- P4. **Vu, Mai** and Paulraj, Arogyaswami J. *"Linear Precoding for Multi-Input Systems based on Channel Estimate and Channel Statistics,"* US Patent 7,680,212, issued Mar 2010.

JOURNAL PAPERS (Underlined names indicate student advisees.)**Submitted articles (under review)**

- R1. A. Alizadeh and **M. Vu**, "Q-Learning for Load Balancing User Association and Handover in Mobile Networks," submitted, under review.

Published/Accepted articles

- J1. A. Alizadeh and **M. Vu**, "Reinforcement Learning for User Association and Handover in mmWave-enabled Networks," *IEEE Transactions for Wireless Communications*, accepted, to appear, 2022.
- J2. R. Malik and **M. Vu**, "Energy-efficient Joint Wireless Charging and Computation Offloading In MEC Systems," *IEEE Journal of Selected Topics in Signal Processing*, vol. 15, no. 5, pp. 1110 – 1126 (17 pages), Aug. 2021.
- J3. R. Malik and **M. Vu**, "On-Request Wireless Charging and Partial Offloading in Massive-MIMO Enabled Multi-Access Edge Computing Systems," *IEEE Transactions on Wireless Communications*, vol. 20, no. 10, pp. 6665 – 6679 (15 pages), Oct. 2021.
- J4. M. Karimzadeh and **M. Vu**, "SIVA: A Low Complexity and Optimum Decoding Algorithm for Tail-biting Codes," *IEEE Transactions for Wireless Communications*, vol. 20, no. 9, pp: 5957 – 5968 (12 pages), Sept. 2021.
- J5. M. Karimzadeh and **M. Vu**, "Metrics and Algorithms for Designing Convolutional Codes with Unequal Error Protection," *IEEE Transactions on Vehicular Technology*, vol. 70, no. 11, pp. 11169 – 11183 (15 pages), Nov. 2021.
- J6. A. Alizadeh and **M. Vu**, "Distributed User Association in 5G Networks Using Early Acceptance Matching Games," *IEEE Transactions for Wireless Communications*, Vol. 20, No. 4, pp. 2428 – 2441, April 2021 (DoI 10.1109/TWC.2020.3042393)
- J7. Nguyen Ho, Huy Vo, **M. Vu**, T. B. Pedersen, "AMIC: An Adaptive Information Theoretic Method to Identify Multi-Scale Temporal Correlations in Big Time Series Data," *IEEE Transactions on Big Data*, Vol. 7, No. 1, pp. 128 – 146, March 2021 (DoI 10.1109/TBDATA.2019.2907987)
- J8. R. Malik and **M. Vu**, "Energy-Efficient Computation Offloading in Delay-Constrained Massive MIMO Enabled Edge Network Using Data Partitioning," *IEEE Transactions on Wireless Communications*, Vol. 19, No. 10, pp. 6977 – 6991, Oct. 2020. (DoI 10.1109/TWC.2020.3007616)
- J9. A. Alizadeh and **M. Vu**, "Load Balancing User Association in Millimeter Wave MIMO Networks," accepted to *IEEE Transactions for Wireless Communications*, Vol. 18, No. 6, pp. 2932 – 2945, June 2019. (DoI 10.1109/TWC.2019.2906196)
- J10. R. Malik and **M. Vu**, "Optimal Transmission Using a Self-sustained Relay in a Full-Duplex MIMO System," *IEEE Journal on Selected Areas in Communications*, Vol. 37, no. 2, pp. 374-390, Feb. 2019. (DOI: 10.1109/JSAC.2018.2872617)
- J11. R. Malik and **M. Vu**, "Optimizing Throughput in a MIMO System with a Self-sustained Relay and Non-uniform Power Splitting," *IEEE Wireless Communications Letters*, Vol. 8, no. 1, pp. 205-208, Feb. 2019. (DOI: 10.1109/LWC.2018.2866551)
- J12. H. E. Elkotby and **M. Vu**, "MIMO Cellular Networks Performance Under User-Assisted Relaying," *IEEE Transactions on Wireless Communications*, Vol. 17, no. 11, pp. 7144-7158, Nov. 2018. (DOI: 10.1109/TWC.2018.2865475)
- J13. H. E. Elkotby and **M. Vu**, "Interference Modeling for Cellular Networks Under Beamforming Transmission," *IEEE Transactions on Wireless Communications*, Vol. 16, No. 8, pp. 5201 – 5217, Aug. 2017. (DOI: 10.1109/TWC.2017.2706683)
- J14. H.T. Do, T.J. Oechtering, M. Skoglund, M. and **M. Vu**, "Interfering relay channels," *Entropy*, Vol 19, No. 9, doi:10.3390/e19090441, 40 pages, Sep. 2017.
- J15. A. A. Al Haija, P. Zhong and **M. Vu**, "Link Regimes Analysis for Partial Decode-Forward Two-Way Relay Transmission", *IEEE Trans. on Communications*, Vol. 65, No. 5, pp. 1925 – 1939, May 2017.
- J16. F. Parzysz, **M. Vu**, and F. Gagnon, "Modeling and Analysis of Energy Efficiency and Interference for Cellular Relay Deployment", *IEEE Trans. on Wireless Communications*, Vol. 16, No. 2, pp. 982 – 997, Feb. 2017.

- J17. L. Pinals and **M. Vu**, "Link-State Optimized Decode-Forward Transmission for Two-Way Relaying," *IEEE Trans. on Communications*, Vol. 64, No. 5, pp. 1844 – 1860, May 2016.
- J18. L. Pinals, A. A. Al Haija, and **M. Vu**, "Link Regime and Power Savings of Decode-Forward Relaying in Fading Channels," *IEEE Trans. on Communications*, Vol. 64, No. 3, pp. 931 – 946, Mar. 2016.
- J19. H. E. Elkotby and **M. Vu**, "Uplink User-Assisted Relaying in Cellular Networks," *IEEE Trans. on Wireless Communications*, Vol. 14, No. 10, pp. 5468 – 5483, Oct. 2015.
- J20. A. A. Al Haija and **M. Vu**, "Outage Analysis for Coherent Decode-Forward Relaying over Rayleigh Fading Channels," *IEEE Trans. on Communications*, Vol. 63, No. 4, pp. 1162 – 1177, Apr. 2015.
- J21. A. A. Al Haija and **M. Vu**, "Spectral Efficiency and Outage Performance for Hybrid D2D-Infrastructure Uplink Cooperation", *IEEE Trans. on Wireless Communications*, Vol. 14, No. 3, pp. 1183 – 1198, March 2015.
- J22. F. Parzysz, **M. Vu**, and F. Gagnon, "Impact of Propagation Environment on Energy-Efficient Relay Placement: Model and Performance Analysis," *IEEE Trans. on Wireless Communications*, Vol. 13, No. 4, pp. 2214 – 2228, Apr. 2014.
- J23. A. A. Al Haija and **M. Vu**, "Rate Maximization for Half-Duplex Multiple Access with Cooperating Transmitters," *IEEE Trans. on Communications*, Vol. 61, No. 9, pp. 3620–3634, Sep. 2013.
- J24. F. Parzysz, **M. Vu**, and F. Gagnon, "Energy Minimization for the Half-Duplex Relay Channel with Decode-Forward Relaying," *IEEE Trans. on Communications*, Vol. 61, pp. 2232–2247, June 2013.
- J25. Y. Zhu and **M. Vu**, "Iterative Mode-Dropping for the Sum Capacity of MIMO-MAC with Per-Antenna Power Constraint," *IEEE Trans. on Communications*, Vol. 60, No. 9, pp. 2421 – 2426, Sep. 2012.
- J26. **M. Vu**, "MISO Capacity with Per-antenna Power Constraint", *IEEE Trans. on Communications*, Vol. 59, No. 5, pp. 1268–1274, May 2011.
- J27. W-Y Shin, S-W Jeon, N. Devroye, **M. Vu**, S-Y Chung, Y.H. Lee, and V. Tarokh, "Improved Capacity Scaling in Wireless Ad Hoc Networks With Infrastructure," *IEEE Trans. on Information Theory*, Vol. 57, No. 8, pp. 5088–5102, Aug. 2011.
- J28. S-W Jeon, N. Devroye, **M. Vu**, S-Y Chung, and V. Tarokh, "Cognitive networks achieve throughput scaling of a homogeneous network," *IEEE Trans. on Information Theory*, Vol. 57, No. 8, pp. 5103–5115, Aug. 2011.
- J29. P. Jia, **M. Vu**, T. Le-Ngoc, S-C. Hong, V. Tarokh, "Capacity- and Bayesian-Based Cognitive Sensing with Location Side Information", *IEEE Trans. on Selected Areas in Communications, Special issue on Advances in Cognitive Radio Networking and Commun.*, Vol. 29, No. 2, pp. 276–289, Feb. 2011.
- J30. S. Yiu, **M. Vu**, and V. Tarokh, "Interference and Noise Reduction by Beamforming in Cognitive Networks," *IEEE Trans. on Communications*, Vol. 57, No. 10, pp. 3144 – 3153, Oct. 2009.
- J31. **M. Vu** and V. Tarokh, "Scaling Laws of Single-Hop Cognitive Networks," *IEEE Trans. on Wireless Communications*, Vol. 8, No. 8, pp. 4089 – 4097, Aug. 2009.
- J32. **M. Vu**, N. Devroye, and V. Tarokh, "On The Primary Exclusive Regions in Cognitive Networks," *IEEE Trans. on Wireless Communications*, Vol. 8, No. 7, pp. 3380 – 3385, July 2009.
- J33. N. Devroye, **M. Vu**, V. Tarokh, "Cognitive Radio Networks: Information Theory Limits, Models and Design," *IEEE Signal Processing Magazine, Spec. Issue on Cognitive Radios*, pp. 12-23, Nov. 2008.
- J34. **M. Vu**, N. Devroye, and V. Tarokh, "An Overview of Scaling Laws in Ad Hoc and Cognitive Radio Networks," *invited paper, Springer Journal, Special Issue on Cognitive Radio Tech.*, Mar. 2008.
- J35. N. Devroye, **M. Vu**, and V. Tarokh, "Achievable Rates and Scaling Laws for Cognitive Radio Models", *invited paper, EURASIP Journal on Wireless Communications and Networking (JWCN), Issue on Cognitive Radio and Dynamic Spectrum Sharing Systems*, Vol. 2008, Article ID 896246, Doi:10.1155/2008/896246, 12 pages, Jan. 2008.
- J36. **M. Vu** and A. Paulraj, "MIMO Wireless Linear Precoding," *IEEE Signal Processing Magazine*, Vol. 24, No. 5, pp. 86-105, Sept. 2007.
- J37. **M. Vu** and A. Paulraj, "On the Capacity of MIMO Wireless Channels with Dynamic CSIT," *IEEE Journal on Selected Areas in Communications, Special Issue on Optimization of MIMO Transceivers for Realistic Communications and Networks*, Vol. 25, No. 7, pp. 1269-1283, Sept. 2007.

- J38. **M. Vu** and A. Paulraj, "Optimal Linear Precoders for MIMO Wireless Correlated Channels with Nonzero Mean in Space-Time Coded Systems," *IEEE Trans. on Signal Processing*, Vol. 54, No. 6, pp. 2318-2332, June 2006. (*nominated for Best paper award*)
- J39. **M. Vu** and A. Paulraj, "Optimum Space-Time Transmission for a High K Factor Wireless Channel with Partial Channel Knowledge," *invited paper*, *Wiley Journal on Wireless Comm. and Mobile Computing (WCMC)*, Vol. 4, pp. 807-816, Nov. 2004.

Non-refereed articles

- N1. P. Zhong, A.A.A. Haija, and **M. Vu**, "On compress-forward without Wyner-Ziv binning for relay networks," arXiv preprint [online <http://arxiv.org/abs/1111.2837>], 46 pages single column double space, 2011. (11 citations)
- N2. **M. Vu**, "The capacity of MIMO channels with per-antenna power constraint," arXiv preprint [online <http://arxiv.org/abs/1106.5039>], 26 pages single column double space, 2011. (16 citations)
- N3. Z. Wu and **M Vu**, "Partial decode-forward binning schemes for the causal cognitive relay channels," arXiv preprint [online <http://arxiv.org/abs/1111.3966>], 35 pages single column double space, 2011. (10 citations)

CONFERENCE PAPERS

- C1. N. Ho, V. Ho, T. B. Pedersen, and M. Vu, "Efficient and Distributed Temporal Pattern Mining," IEEE Int'l Conf. on Big Data, Dec. 2021.
- C2. Y. Liu, A. Alizadeh, M. Vu, and E. Yeh, "Joint User Association and Caching in Wireless Heterogeneous Networks with Backhaul," IEEE Int'l Conf. on Communications (ICC), Montreal, June 2021.
- C3. E.M. Taghavi, A. Alizadeh, N. Rajatheva, M. Vu, and M. Latva-aho. "User Association in Millimeter Wave Cellular Networks with Intelligent Reflecting Surfaces." IEEE 93rd Vehicular Technology Conf. (VTC2021-Spring), May 2021.
- C4. A. Alizadeh, and M. Vu. "Multi-Armed Bandit Load Balancing User Association in 5G Cellular HetNets," IEEE Global Communications Conf. (GLOBECOM), Taiwan, Dec. 2020.
- C5. M. Karimzadeh and **M. Vu**, "Optimal CRC Design and Serial List Viterbi Decoding for Multi-Input Convolutional Codes," *IEEE Global Commun. Conf. (Globecom 2020)*, Taiwan, 2020.
- C6. H. Nguyen, T.B. Pedersen, V.L. Ho, **M. Vu**, "Efficient Search for Multi-Scale Time Delay Correlations in Big Time Series Data," 23rd International Conference on Extending Database Technology (EDBT), Denmark, Mar. 2020.
- C7. A. Alizadeh and **M. Vu**, "Early Acceptance Matching Game for User Association in 5G Cellular HetNets," *IEEE Global Communications Conf. (Globecom 2019)*, Dec 2019.
- C8. R. Malik and **M. Vu**, "Multi-Access Edge Computation Offloading Using Massive MIMO," *IEEE Global Communications Conference (Globecom 2019)*, Dec 2019.
- C9. M. Karimzadeh and **M. Vu**, "Short Blocklength Priority-Based Coding for Unequal Error Protection in the AWGN Channel," *IEEE Global Comm. Conf. (Globecom 2019)*, Dec 2019.
- C10. A. Alizadeh, **M. Vu**, and T. Rappaport, "A Study of Interference Distributions in Millimeter Wave Cellular Networks," biennial *IEEE Conf. on Microwaves, Communications, Antennas & Electronic Systems (IEEE COMCAS)*, Israel, Nov. 2019.
- C11. V. Svenda, **M. Vu** and A. Stankovic, "Reactive Power Optimization for Flat Voltage Profiles in Distribution Networks," *51st North American Power Symposium*, Kansas, Oct. 2019.
- C12. Nguyen Ho, T. B. Pedersen, **M. Vu**, V. L. Ho, and C. A.N. Biscioz, "Efficient Bottom-Up Discovery of Multi-Scale Time Series Correlations Using Mutual Information," *35th IEEE International Conference on Data Engineering*, Apr. 2019.
- C13. A. Alizadeh and **M. Vu**, "Time-Fractional User Association in Millimeter Wave MIMO Networks", IEEE Int'l Conf. on Communications (ICC), May 2018.
- C14. H. ElKotby and **M. Vu**, "A New Probabilistic Model for mmWave Cellular Interference Power Distribution", IEEE Global Conf. on Signal and Information Proc. (GlobalSIP), Dec 2016.

- C15. H. Elkotby and **M. Vu**, "Poster: Reliability enhancement in V2V networks through vehicle-assisted relaying," IEEE Vehicular Networking Conference (VNC), pp. 1-2, Dec. 2016.
- C16. L. Pinals, A. A. Al Haija, and **M. Vu**, "Message Priority in Two-Way Decode-Forward Relaying," IEEE Global Communications Conf. (Globecom), Dec. 2016.
- C17. H. ElKotby and **M. Vu**, "A New Model for mmWave Cellular Interference Power Distribution," IEEE Global Communications Conf. (Globecom), Dec. 2016.
- C18. Nguyen Ho, Huy Vo, and **M. Vu**, "An Adaptive Information-Theoretic Approach for Identifying Temporal Correlations in Big Data Sets," IEEE Int'l Conf. on Big Data (IEEE BigData), Dec. 2016.
- C19. H. ElKotby and **M. Vu**, "Outage Performance of Uplink User-Assisted Relaying in 5G Cellular Networks," IEEE Global Communications Conf. (Globecom), Dec. 2015.
- C20. L. Pinals and **M. Vu**, "Relay Power Savings through Independent Coding," IEEE Global Communications Conf. (Globecom), Dec. 2015.
- C21. A. A. Al Haija, L. Pinals and **M. Vu**, "Outage Analysis and Power Savings for Independent and Coherent Decode-Forward Relaying," IEEE Global Commun. Conf. (Globecom), Dec. 2015.
- C22. L. Pinals and **M. Vu**, "Maximum Entropy Quantization for Link-State Adaptation in Two-Way Relaying," Int'l Conf. for Military Communications (Milcom), Oct. 2015.
- C23. B. Fischler, D. Griffin, T. Lubeck, K. H. Wapman, and **M. Vu**, "Device-Agnostic Wi-Fi Fingerprint Positioning for Consumer Applications," IEEE Int'l Symposium on Personal, Indoor and Mobile Radio Commun. (PIMRC), Aug. 2015.
- C24. L. Pinals and **M. Vu**, "*Adaptation of Decode-Forward Two-Way Relaying to Fading Links: a Rate and Power Analysis*," IEEE Int'l Conference on Communications (ICC), June 2015.
- C25. L. Pinals and **M. Vu**, "*Link State Based Decode-Forward Schemes for Two-way Relaying*," Int'l Workshop on Emerging Technologies for 5G Wireless Cellular Networks, IEEE Global Communications Conf. (Globecom), Dec. 2014.
- C26. A. A. Al Haija and **M. Vu**, "*Outage Analysis for Half-Duplex Partial Decode-Forward Relaying over Fading Channel*," IEEE Global Communications Conf. (Globecom), Dec. 2014.
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