Giuseppe Durisi: Curriculum Vitae

Work address:
Department of Electrical Engineering
Chalmers University of Technology
41296 Gothenburg, Sweden

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url: http://gdurisi.github.io

RESEARCH	Information theory, communication theory, machine learning
PERSONAL	Born on November 28, 1977 in Turin, Italy; Italian citizenship; male; married with two children; languages: Italian, English, German, Swedish

EDUCATION

◇ Mar. 2012: Chalmers University of Technology, Sweden
Docent diploma in Information Theory

◇ Mar. 2006: Politecnico di Torino, Italy
Ph.D. in electrical and communication engineering
· Doctoral dissertation: *Noncoherent fading channels: capacity and coding*
· Advisor: Professor Sergio Benedetto (Politecnico di Torino, Italy)

◇ Nov. 2001: Politecnico di Torino, Italy
Telecommunications Engineering Diploma [M.Sc.], *summa cum laude*
· Diploma dissertation: *Analysis and simulation of an ultra-wideband communication system over a multipath channel*
· Advisors: Professor Sergio Benedetto (Politecnico di Torino, Italy), Dr. Giovanni Romano (Telecom Italia Lab, Turin, Italy)

ACADEMIC WORK EXPERIENCE

◇ Jun. 2020-current: Full professor at Chalmers University of Technology, Sweden

◇ Apr. 2023-current: Director of the master program in Information and Communication Technologies at Chalmers University of Technology, Sweden

◇ Feb. 2016-Feb. 2022: Co-director information and communication technology (ICT) area of advance at Chalmers University of Technology, Sweden

◇ Oct. 2018-Dec. 2020: Co-director of Chalmers artificial-intelligence research center (CHAIR)

◇ Jan. 2017-May 2020: Professor at Chalmers University of Technology, Sweden

◇ Dec. 2013-Dec. 2016: Associate professor at Chalmers University of Technology, Sweden

◇ Nov. 2010-Nov. 2013: Assistant professor at Chalmers University of Technology, Sweden

◇ Apr. 2012: Guest professor at Vienna University of Technology, Austria

◇ Feb. 2008-Oct. 2010: Senior researcher at ETH Zurich, Switzerland

◇ Feb. 2006-Jan. 2008: Postdoctoral researcher at ETH Zurich, Switzerland

◇ Nov. 2004-Nov. 2005: Visiting researcher at ETH Zurich, Switzerland

◇ Mar. 2004-Jul. 2004: Visiting researcher at Università di Pisa, Italy

◇ Jan. 2002-Jan. 2006: Junior researcher at Istituto Superiore Mario Boella, Turin, Italy

INDUSTRIAL WORK EXPERIENCE

◇ Sep. 2018-Sep. 2020: Visiting researcher at Qamcom Research & Technology AB, Sweden

◇ Jan. 2014-2017: Visiting researcher at Ericsson Research, Sweden

◇ Nov. 2002-Apr. 2003: Visiting researcher at IMST GmbH, Germany

◇ Feb. 2001-Nov. 2001: Master thesis internship at Telecom Italia Lab, Turin, Italy

HONORS
- ◇ 2025: *best paper* at the International Symposium on Information Theory Workshop "Learn to Compress or Compress to Learn"
- ◇ 2022: *3rd place award* at the Asilomar Conference on Signals, Systems and Computers *student paper contest* (lead author: Ph.D. student Oguz Kislal)
- ◇ 2017: exemplary reviewer, IEEE Transactions on Wireless Communications
- ◇ 2016: exemplary reviewer, IEEE Transactions on Communications
- ◇ 2013 IEEE ComSoc Young Researcher Award for Europe, Middle East, and Africa Region
- ◇ 2013 IEEE Sweden VT-COM-IT Chapter *best student conference paper award* (lead author: Ph.D. student Wei Yang)
- ◇ *Student paper award* at the IEEE International Symposium on Information Theory (ISIT 2012) (lead author: Ph.D. student Wei Yang)
- ◇ *Senior member* of the Institute of Electrical and Electronics Engineers (IEEE), Feb. 2012
- ◇ *Optime* award from Unione Industriale, Turin, Italy (for best graduates of the year 2001)

TEACHING & SUPERVISION
- ◇ Chalmers University of Technology: **Lecturer**
  - · 2021-2025: Probability and statistical learning using python (7.5 credits, master course, fall semester, taught in English)
  - · 2020–2025: Statistics and machine learning in high dimensions (7.5 credits, master/PhD course, fall semester, taught in English)
  - · 2011–2025: Information theory (7.5 credits, master/PhD course, spring semester, taught in English)
  - · 2012–2023: Wireless communications (7.5 credits, master course, spring semester, taught in English, *guest lecturer*)
  - · 2021-2022: Digital communications (7.5 credits, master course, fall semester, taught in English)
  - · 2016–2018: Probability and random processes (7.5 credits, master/PhD course, fall semester, taught in English)
  - · 2014–2018: Electrical measurements: systems and methods (7.5 credits, bachelor course, spring semester, taught in English/Swedish)
  - · 2011: Network information theory (7.5 credits, PhD course, fall semester, taught in English)
- ◇ Vienna University of Technology: **Lecturer**
  - · 2012: Network information theory (1.5 unit, graduate/PhD short course, spring semester, taught in English)
- ◇ ETH Zurich: **Teaching assistant** for graduate courses
  - · 2007–2010: Fundamentals of wireless communications (4-unit graduate course, spring semester, taught in English)
  - · 2009: Receivers for wireless communications (4-unit graduate course, spring semester, taught in English)
  - · 2009: Harmonic analysis: theory and applications in advanced signal processing (4-unit graduate course, spring semester, taught in English)
- ◇ Politecnico di Torino: **Teaching assistant** for undergraduate courses
  - · 2005: Analysis of discrete-time signals (2-unit undergraduate course, fall semester, taught in Italian)
  - · 2003–2004: Signal theory (2-unit undergraduate course, fall semester, taught in Italian)
- ◇ Currently supervised Ph.D. students at Chalmers University of Technology:

- · Z. Cheong, *Compression and discrimination in modern machine-learning algorithms*, started in 2025
- · E. Ametsi, *Runtime safe monitors for automotive ML-base functions*, started in 2025 (co-supervisor)
- · A. V. Parambath, *Distributed radio networks*, started in 2024 (co-supervisor)
- · B. Chen, *Machine learning over communication systems*, started in 2024 (co-supervisor)
- · K. Okumus, *Goal-oriented communications*, started in 2023 (co-supervisor)
- · A. Bordbar, *Machine learning for communications*, started in 2023
- · J. Naram, *Information theoretic generalization bounds*, started in 2023

◇ Current post-doctoral fellows at Chalmers University of Technology:

- · U. K. Ganesan: Machine learning over communication systems, 2024–present
- · Deekshith P. K., *Uncoordinated massive random access*, 2023–present

◇ Past post-doctoral fellows at Chalmers University of Technology:

- · K-H. Ngo, *Secure and private massive cloud/edge connectivity*, 2020–2024
- · A. Lancho, *Massive multiple-access communications for IoT applications*, 2019–2021
- · A. Rezazadeh, *Information-theoretic methods in machine, learning*, 2019–2022
- · G. C. Ferrante, *finite blocklength information theory*, 2017–2018

◇ Past Ph.D. students

- · L. Aabel, *Distributed Antenna Systems Using 1-bit Radio-Over-Fiber*, PhD 2025 (main supervisor, Chalmers University of Technology)
- · Y. Ettefagh, *Positioning, Synchronization, and Communication in 6G: Insights from Massive MIMO, RIS, and NTN*, PhD 2025 (co-supervisor, Chalmers University of Technology)
- · O. Kislal, *Fundamental Limits of Ultra-Reliable Low-Latency Communications*, PhD 2024 (co-supervisor, Chalmers University of Technology)
- · F. Hellström, *Information-Theoretic Generalization Bounds: Tightness and Expressiveness*, PhD 2023 (main supervisor, Chalmers University of Technology)
- · J. Östman, *Ultra-Reliable Short-Packet Communications: Fundamental Limits and Enabling Technologies*, PhD 2020 (co-supervisor, Chalmers University of Technology)
- · S. Jacobsson, *Massive multiantenna communications with low-resolution converters*, PhD 2019 (main supervisor, Chalmers University of Technology)
- · K. Keykhosravi, *Capacity analysis and receiver design in the presence of fiber nonlinearity*, PhD 2019 (co-supervisor, Chalmers University of Technology)
- · R. Devassy, *Delay and throughput bounds for the design of next generation wireless systems*, PhD 2019 (main supervisor, Chalmers University of Technology)
- · W. Yang, *Fading channels: capacity and channel coding rate in the finite-blocklength regime*, PhD 2015 (main supervisor, Chalmers University of Technology)
- · M. R. Khanzadi, *Phase noise in communication systems: modeling, compensation, and performance analysis*, PhD 2015 (co-supervisor, Chalmers University of Technology)
- · P. Kuppinger, *General uncertainty relations and sparse signal recovery*, PhD 2011 (co-supervisor, ETH Zurich)
- · V. I. Morgensthern, *Crystallization and noncoherence in wireless communication*, PhD 2010 (co-supervisor, ETH Zurich)
- · U. G. Schuster, *Wireless communication over wideband channels*, PhD 2007 (co-supervisor, ETH Zurich)

PROFESSIONAL
SERVICE

◇ Editorships:

· Associate editor, IEEE Transactions on Information Theory, 2024-current
· Guest editor, IEEE Journal on Selected Areas in Information Theory; Special issue on "Information Theoretic Foundations of Future Communication Systems", 2021
· Associate editor, IEEE Transactions on Communications, 2015-2021
· Publications editor, IEEE Transactions on Information Theory, 2011-2014.

◇ Member of the organizing committee:

· Track chair, European Conference on Networks and Communications (EUCNC), Gothenburg, Sweden, June 2023
· Recent-result chair, International Symposium on Information Theory (ISIT), Espoo, Finland, June 2022
· Publication chair, Information Theory Workshop (ITW), Riva del Garda, Italy, September 2020
· Track chair, Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, California, USA, Nov. 2019
· Publication chair, International Symposium on Information Theory (ISIT), Aachen, Germany, Jul. 2017
· Chair, European School of Information Theory (ESIT), Gothenburg, Sweden, May 2016
· Local organizer, 7th *International Symposium on Turbo Codes & Iterative Information Processing (ISTC)*, Gothenburg, Sweden, Aug. 2012
· Chair, Workshop on *Machine Learning and Large Data Sets*, Gothenburg, Sweden, Aug. 2011
· Chair, 1st workshop on *Ultra-Wideband for Wireless Personal Area and Sensor Networks*, Turin, Italy, Nov. 2004

◇ Technical program committee membership:

IEEE Int. Conf. Commun. (ICC):	2006, 2011–2016, 2018–2026
IEEE MeditCom:	2026
IEEE Global Commun. Conf. (GLOBECOM):	2011–2013, 2018, 2021–2026
Int. Workshop on Smart Antennas (WSA):	2024
IEEE Int. Workshop Signal Process. Advances Wireless Commun. (SPAWC):	2021–2024
Int. Zurich Seminar (IZS):	2014–2024
IEEE Int. Conf. Comp. Comm. (INFOCOM):	2023
Int. Veh. Tech. Conf. (VTC):	2017-2019
Int. Conf. Telecommun. (ICT)	2015, 2018
Int. Symp. Wirel. Commun. Sys. (ISWCS):	2011, 2017, 2018
Int. ITG Conf. Sys. Commun. Coding (SCC):	2017, 2019, 2022
IEEE Inf. Theory. Workshop (ITW):	2016
IEEE Wirel. Commun. Net. Conf. (WCNC):	2013–2016, 2019
Int. Workshop Physic Wirel. Comm. Net. (PHYSCOMNET):	2014
Int. Conf. Comput. Net. Commun. (ICNC):	2012, 2018
Int. Symp. Personal, Indoor, Mobile Radio Commun. (PIMRC):	2012
IEEE Swedish Commun. Tech. Workshop (SWE-CTW):	2011, 2012
Int. Conf. on Commun. Net. in China (CHINACOM):	2010
IEEE Int. Conf. Ultra-Wideband (ICUWB):	2009

⋄ Invited-session organizers at

Asilomar Conference on Signals, Systems, and Computers:	2022
IEEE Inf. Theory Workshop (ITW):	2020
Int. Zurich Seminar (IZS):	2016
Int. Symp. Wirel. Commun. Sys. (ISWCS):	2014

⋄ Referee for the European Research Council (ERC)

⋄ Referee for the Swedish Research Council (Vetenskapsrådet)

⋄ Referee for the Israel Science Foundation

⋄ Referee for the Italian agency for the evaluation of universities and research institutes (AN-VUR)

⋄ Referee for the German Verband der Elektrotechnik Elektronik Informationstechnik (VDE-ITG)

⋄ Referee for the Austrian Wiener Wissenschaft- Forschungs- und Technologiesfonds (WWTF)

⋄ Member of examination committee/opponent in research degree examinations

· Patrick Agostini *Grant-Free Random Access for Massive Access: Coding, Detection, and Semantic-Aware Techniques*, Ph.D. Thesis, Berlin, Germany, Dec. 2025.

· Jianan Bai, *Enabling Technologies for Latency-Critical Wireless Systems*, Ph.D. Thesis, Linköping, Sweden, Oct. 2025.

· Mody SY, *Enhanced Receiver Design for Ultra-Reliable Low-Latency Short Data Communications*, Ph.D. Thesis, Eurecom, France, Oct. 2024.

· Borja Rodriguez Galvez, *An Information-Theoretic Approach to Generalization Theory*, Ph.D. Thesis, KTH, Sweden, Apr. 2024.

· Juan Vidal Alegría, *Beyond Massive MIMO: Trade-offs and Opportunities with Large Multi-Antenna Systems*, Ph.D. Thesis, Lund University, Sweden, June. 2023

· Antonino Favano, *The Capacity of Amplitude-Constrained Vector Gaussian Channels*, Ph.D. Thesis, Politecnico di Milano, Italy, Jan. 2023

· Linghui Zhou, *Information-Theoretic Privacy and Secrecy in Biometric Identification and Authentication*, Ph.D. Thesis, Royal Institute of Technology, Sweden, Oct. 2022.

· Kassem Saied, *Quasi-Cyclic Short Packet Transmission for IoT*, Ph.D. Thesis, Université Bretagne Sud, France, Mar. 2022.

· Emmanouil Foutoulakis, *Performance and Optimization Aspects of Time Critical Networking*, Ph.D. Thesis, Linköping University, Sweden, Oct. 2021.

· Khac-Hoang Ngo, *Non-coherent Wireless Communications: Fundamental Limits and System Design*, Ph.D. Thesis, University of Paris-Saclay, France, July 2020

· Apostolos Avranas, *Resource Allocation for Latency Sensitive Wireless Systems*, Ph.D. Thesis, Telecom Paris, France, Jun. 2020.

· Emmanouil Fountoulakis, *Performance Analysis and Optimization for Time Critical Networking*, Licentiate Thesis, Linköping University, Sweden, Oct. 2019.

· Jun Li, *Ultra-low latency communication for 5G transport network*, PhD Thesis, Royal Institute of Technology, Sweden, Sep. 2019.

· Sebastian Schiessl, *Performance Trade-offs for Ultra-Reliable Low-Latency Communication Systems*, PhD Thesis, Royal Institute of Technology, Sweden, Jun. 2019.

· Silvio Mandelli, *Analysis of Wiener phase noise issues in optical transmission systems*, PhD Thesis, Politecnico di Milano, Italy, Jan. 2016.

· Simone Pecorino, *Information rates of channels with memory by Bayesian tracking*, PhD Thesis, Politecnico di Milano, Italy, Jan. 2016.

· Zhao Wang, *Interference Alignment with Imperfect Channel Knowledge and Secrecy Constraints*, PhD Thesis, Royal Institute of Technology, Sweden, May 2015.

· Günther Koliander, *Information-theoretic analysis of noncoherent block-fading channels and singular random variables*, PhD Thesis, Vienna University of Technology, Vienna, Austria, Apr. 2015

· Hien Quoc Ngo, *Massive MIMO: fundamentals and system designs*, PhD Thesis, Linköping University, Sweden, Mar. 2015

· David Gustafsson, *Extending the bandwidth of the Doherty power amplifier*, PhD thesis, Chalmers University of Technology, Sweden, Sep. 2014

· Nicolas Schrammar, *On deterministic models for Gaussian networks*, PhD thesis, KTH Royal Institute of Technology, Sweden, Jun. 2013

· Hien Quoc Ngo, *Performance bounds for very large multiuser MIMO systems*, Licentiate thesis, Linköping University, Sweden, Dec. 2012

· Lu Lu, *Wireless broadcasting with network coding*, Licentiate thesis, KTH Royal Institute of Technology, Sweden, Sep. 2011

· P. Kuppinger, *General uncertainty relations and sparse signal recovery*, PhD thesis, ETH Zurich, Switzerland Feb. 2011

FUNDING
◇ "Wireless beyond standardization", Swedish Research Council *2025-07508*, network grant for planning future excellent clusters for groundbreaking technologies, 1 200 kSEK, responsibility: **co-investigator**

◇ "Understanding transformers via compression and discrimination". Wallenberg AI, autonomous systems, and software program, *2026-2029*, academic doctoral student project, responsibility: **principal investigator**

◇ "R-SAFE—runtime safe monitors for automotive ML-based functions", Wallenberg AI, autonomous systems, and software program, *2025-2028* industrial doctoral student project, (Volvo Car Corporation), responsibility: **co-investigator**

◇ "Goal-oriented communications: When is semantic feedback useful?", Swedish Research Council *2022-05571* project grant, 3 600 kSEK, responsibility: **co-investigator**

◇ "SAICOM: Software Artificial Intelligence for Communications", Swedish Foundation for Strategic Research (SSF), Future software systems, 2022-2026, 35 000 kSEK, responsibility: **co-investigator**

◇ "Evaluated mutual information bounds for learning and metalearning", Wallenberg AI, autonomous systems, and software program 2023-2027, academic doctoral student project, responsibility: **principal investigator**

◇ "Energy-efficient massive random access for real-time distributed autonomous systems", Swedish Research Council *2021-04970 project grant* , 2022-2025, 4 000 kSEK, responsibility: **principal investigator**

◇ "LANTERN: Low-latency and private edge computing in random-access networks", Marie Skłodowska-Curie Individual Fellowship 2021-2022, responsibility: **co-supervisor** (fellow: K.-H. Ngo)

◇ "Information-theoretic limits for deep neural networks", Marie Skłodowska-Curie Individual Fellowship 2020-2021, responsibility: **supervisor** (fellow: A. Rezazadeh)

◇ "Generalization bounds for deep neural networks: Insight and Design" Wallenberg AI, autonomous system, and software program, academic doctoral student project, 2020-2025, responsibility: **co-investigator**

◇ "Non-coherent low-latency communications", German DAAD-DLR fellowship, 25 kSEK, 2019, responsibility: **principal investigator**

⋄ "Distributed massive MIMO with low-precision components", Swedish Foundation for Strategic Research (SSF), Industrial PhD grant, 2 500 kSEK, 2020-2024, responsibility: **principal investigator**

⋄ "Secure, Private, and Low-Latency Cloud Connectivity for IoT Applications", WASP expedition project, 2019-2021, responsibility: **principal investigator**

⋄ "Communication in time: theory and practice for the automated society", Swedish Research Council, *2018-04359 project grant* 2019-2022, 4 000 kSEK, responsibility: **co-investigator**

⋄ "Low-Latency Wireless Random Access for IoT connectivity", Swedish Foundation for Strategic Research (SSF), Mobility Grant, 933 kSEK, 2018-2019, responsibility: **principal investigator**

⋄ "Protection in a Power-Electronic Converter Dominated Medium-Voltage Microgrid Utilizing Digital Communication", Chalmers Energy Area of Advance, 2MSEK, 2018-2019, responsibility: **co-investigator**

⋄ "Wireless communication for stability and performance enhancement in converter-dominated AC microgrids", Chalmers E2 seed fund, 250 kSEK, 2018, responsibility: **co-investigator**

⋄ "INNER–information theory of deep neural networks", Chalmers E2 seed fund, 500 kSEK, 2018, responsibility: **principal investigator**

⋄ "SWIFT–short-packet wireless information theory", Swedish Research Council, *2016-03293 project grant* 2017-2020, 3 680 kSEK **principal investigator**

⋄ "mmMAGIC–Millimetre-Wave Based Mobile Radio Access Network for Fifth Generation Integrated Communications", European Commission, Horizon 2020, 2015-2017, responsibility: **project member**

⋄ "Massive MIMO systems with low-precision converters", Swedish Foundation for Strategic Research (SSF), Industrial PhD grant, 2 500 kSEK, 2015-2019, responsibility: **principal investigator**

⋄ "Theory and practice for optimum spectral efficiency for ad-hoc wireless networks with strict requirements on latency and reliability", Swedish Research Council, *2014-6066 project grant* 2015-2018, 3 643 kSEK **co-investigator**

⋄ "Multi-antenna technologies for wireless access and backhaul (MATWAB)", VINNOVA, 3570 kSEK, 2015-2016; responsability: **co-investigator and project manager**

⋄ "Massive MIMO: from hype to roll-out", Ericsson AB, 4000 kSEK, 2014-2016, **co-investigator**

⋄ "Nonlinear hardware impairments in massive MIMO systems", Swedish Foundation for Strategic Research (SSF), Strategic Mobility Grant, 942 kSEK, 2014-2015, responsibility: **principal investigator**

⋄ "Optical interference is not noise", Swedish Research Council, *2013-5271 project grant*, 4 720 kSEK, 2014-2017; responsibility: **co-investigator**

⋄ "Multipath test environment for future communication systems" Swedish Research Council, *2013-5718 industrial Ph.D. project grant*, 2 156 kSEK, 2014-2017; responsibility: **co-investigator**

⋄ "Fundamental limits of user cooperation in wireless networks", Swedish Research Council, *2012-4571 Junior researcher grant*, 3 280 kSEK; 2013-2016; responsibility: **principal investigator**

⋄ "Handling the data flood in wireless communications", Chalmers *Area of Advance* initiative: Information and Communication Technology; 8 000 kSEK; 2010-2014; responsibility: **principal investigator**

PUBLICATIONS: OVERVIEW	Since 2001, Dr. Durisi has published a book, 62 journal papers, and 115 conference papers. These papers received 10 699 citations according to Google Scholar, with a corresponding *h-index* of 47. The publications are listed below in reversed chronological order.

<small>PREPRINTS</small>

[P2] M. Zecchin, U. K. Ganesan, G. Durisi, P. Popovski, and O. Simeone, "Prediction-powered communication with distortion guarantees," Sept. 2025.

[P1] G. Durisi and A. Lancho, *Transmitting short packets over wireless channels—an information-theoretic perspective*, Lecture Notes, Nov. 2020. [Online]

<small>PUBLICATIONS:</small>
<small>BOOKS AND</small>
<small>MONOGRAPHS</small>

[B1] A. Zaidi, F. Athley, J. Medbo, U. Gustavsson, G. Durisi, and X. Cheng, *5G Physical Layer: principles, models and technology components*. Academic Press, 2018.

[B2] F. Hellström, G. Durisi, B. Guedj, and M. Raginsky, *Generalization Bounds: Perspectives from Information Theory and PAC-Bayes*, vol. 18, pp. 1–223, Foundations and Trends in Machine Learning, Jan. 2025

<small>PUBLICATIONS:</small>
<small>BOOK</small>
<small>CHAPTERS</small>

[BC1] G. Durisi, G. Liva, and Y. Polyanskiy, "Short-packet transmission," in *Information Theoretic Perspectives on 5G Systems and Beyond*, I. Marić, S. Shamai (Shitz), and O. Simeone, Eds. London, U.K.: Cambridge Univ. Press, Jul. 2020.

[BC2] G. Durisi, U. G. Schuster, V. I. Morgenshtern, H. Bölcskei, and S. Shamai (Shitz), "Information theory of underspread WSSUS channels," in *Wireless Communications over Rapidly Time-Varying Channels*, F. Hlawatsch and G. Matz, Eds. Academic Press, Mar. 2011.

<small>PUBLICATIONS:</small>
<small>JOURNAL</small>
<small>PAPERS</small>

[J63] L. Aabel, G. Durisi, F. Olofsson, E. Börjeson, M. Coldrey, and C. Fager, "Insights on the uplink operation of a 1-bit radio-over-fiber architecture in multi-user D-MIMO communication," *IEEE Trans. Microw. Theory Tech.*, 2025, to appear.

[J62] K.-H. Ngo, G. Durisi, A. Munari, F. Lazaro, and A. Graell i Amat, "Timely status updates in slotted ALOHA networks with energy harvesting," *IEEE Trans. Commun.*, vol. 73, pp. 7288–7303, Sept. 2025.

[J61] A. Sauter, A. O. Kislal, G. Durisi, G. Liva, B. Matuz, and E. G. Ström, "Undetected error probability in the short blocklength regime: Approaching finite-blocklength bounds with polar codes," *IEEE Trans. Commun.*, vol. 73, pp. 7007–7020, Sept. 2025.

[J60] H. Guo, H. Wymeersch, B. Makki, H. Chen, Y. Wu, G. Durisi, M. F. Keskin, M. M. Moghaddam, C. Madapatha, H. Yu, P. Hammaberg, H. Kim, and T. Svensson, "Integrated communication, localization and sensing in 6G D-MIMO networks," *IEEE Wireless Commun. Mag.*, vol. 32, pp. 214–221, Feb. 2025.

[J59] A. O. Kislal, M. Rajiv, G. Durisi, E. G. Ström, and U. Mitra, "Is synchronization a bottleneck for pilot-assisted URLLC links?," *IEEE Trans. Wireless Commun.*, vol. 23, pp. 17945–17958, Dec. 2024.

[J58] A. E. Kalør, G. Durisi, S. Coleri, S. Parkvall, W. Yu, A. Mueller, and P. Popovski, "Wireless 6G connectivity for massive number of devices and critical services," *Proc. IEEE*, pp. 1–23, Nov. 2024.

[J57] A. Hu, L. Aabel, G. Durisi, S. Jacobsson, M. Coldrey, and C. Fager, "EVM analysis of distributed massive MIMO with 1-bit radio-over-fiber fronthaul," *IEEE Trans. Commun.*, vol. 72, pp. 7342–7356, Nov. 2024.

[J56] L. Aabel, S. Jacobsson, M. Coldrey, F. Olofsson, G. Durisi, and C. Fager, "A TDD distributed MIMO testbed using a 1-bit radio-over-fiber fronthaul architecture," *IEEE Trans. Microw. Theory Tech.*, vol. 72, pp. 6140–6152, Oct. 2024.

[J55] K.-H. Ngo, G. Durisi, A. Graell i Amat, P. Popovski, A. E. Kalør, and B. Soret, "Unsourced multiple access with common alarm messages: Network slicing for massive and critical IoT," *IEEE Trans. Commun.*, vol. 72, no. 2, pp. 907–923, Feb. 2024.

[J54] A. Munari, F. Lazaro, G. Durisi, and G. Liva, "The dynamic behavior of frameless ALOHA: Stability, throughput, and age of information," *IEEE Trans. Commun.*, vol. 71, no. 12, pp. 6914–6927, Dec. 2023.

[J53] Y. Ettefagh, S. R. Aghdam, G. Durisi, S. Jacobsson, M. Coldrey, and C. Studer, "Performance of quantized massive MIMO with fronthaul rate constraint over quasi-static channels," *IEEE Access*, vol. 11, 2023

[J52] A. Lancho, G. Durisi, and L. Sanguinetti, "Cell-free massive MIMO for URLLC: A finite-blocklength analysis," *IEEE Trans. Wireless Commun.*, vol. 22, no. 12, pp. 8723–8735, Dec. 2023.

[J51] A. O. Kislal, A. Lancho, G. Durisi, and E. Ström, "Efficient evaluation of the error probability for pilot-assisted URLLC with Massive MIMO," *IEEE J. Sel. Areas Commun.*, vol. 41, no. 7, pp. 1969–1981, July 2023.

[J50] K.-H. Ngo, A. Lancho, G. Durisi, and A. Graell i Amat, "Unsourced multiple access with random user activity," *IEEE Trans. Inf. Theory*, vol. 69, no. 7, pp. 4537–4558, July 2023.

[J49] S. T. Jose, O. Simeone, and G. Durisi, "Transfer meta-learning: Information-theoretic bounds and information meta-risk minimization," *IEEE Trans. Inf. Theory*, vol. 68, no. 1, pp. 474–501 Jan. 2022.

[J48] F. Hellström and G. Durisi, Corrections to "Generalization bounds via information and conditional information density", *IEEE J. Sel. Areas Inf. Theory*, vol. 2, no. 3, pp. 1072-1073, Sep. 2021.

[J47] J. Östman, A. Lancho, G. Durisi, and L. Sanguinetti, "URLLC with Massive MIMO: Analysis and design at finite blocklength," *IEEE Trans. Wireless Commun.*, vol. 20, no. 10, pp. 6387–6401, Oct. 2021.

[J46] I. C. Sezgin, L. Aabel, S. Jacobsson, G. Durisi, Z. S. He, and C. Fager, "All-digital, radio-over-fiber, communication link architecture for time-division duplex distributed antenna system," *J. Lightw. Technol.*, vol. 39, no. 9, pp. 2769–2779, Feb. 2021.

[J45] J. Östman, R. Devassy, G. Durisi, and E. G. Ström, "Short-packet transmission via variable-length codes in the presence of noisy stop feedback," *IEEE Trans. Wireless Commun.*, vol. 20, no. 1, pp. 214–227, Jan. 2021.

[J44] F. Hellström and G. Durisi, "Generalization bounds via information density and conditional information density," *IEEE J. Sel. Areas Info. Theory*, vol. 1, no. 3, pp. 824–839, Nov. 2020.

[J43] A. Lancho, J. Ostman, G. Durisi, T. Koch, and G. Vazquez-Vilar, "Saddlepoint approximations for short-packet wireless communications," *IEEE Trans. Wireless Commun.*, vol. 19, no. 7, Jul. 2020.

[J42] O. Castañeda, S. Jacobsson, G. Durisi, T. Goldstein, and C. Studer, "High-bandwidth spatial equalization for mmWave massive MU-MIMO with processing-in-memory," *IEEE Trans. Circuits Syst. II: Express Briefs*, vol. 67, no. 5, pp. 891-895, May 2020.

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[J40] A. Lancho, T. Koch, and G. Durisi, "On single-antenna Rayleigh block-fading channels at finite blocklength," *IEEE Trans. Inf. Theory*, vol. 66, no. 1, pp. 496–519, Jan. 2020.

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TUTORIALS

[T2] Giuseppe Durisi and Fabian Steiner "Short-packet communications: fundamentals and practical coding schemes", Swedish Communication Technology Workshop (SWE-CTW), Lund, Sweden, Jun. 2019.

[T1] Giuseppe Durisi, Gianluigi Liva, and Fabian Steiner, "Short-packet communications: fundamentals and practical coding schemes", IEEE Globecom 2018, Abu-Dhabi, UAE.

INVITED TALKS

[I40] "Theoretical Performance Guarantees for Partial Domain Adaptation via Partial Optimal Transport", Workshop in Advancements in High-Dimensional Methods for Machine Learning, Gothenburg, Sweden, May 2025

[I39] "Packet and error detection for short-packet transmission", London Symposium on Information Theory, Cambridge, United Kingdom, May 2025

[I38] "Type-based unsourced random access", International ITG Conference on Systems, Communications, and Coding, Karlsruhe, Germany, March 2025.

[I37] "Generalization bounds: Perspectives from PAC-Bayes and information theory", Aalborg, Denmark, April 2024.

[I36] "Short packets over a massive random-access channel", London Symposium on Information Theory, London, U.K., May 2023

[I35] "Seeking information-theoretic bounds that explain generalization", Information theory and tapas workshop, Madrid, Spain, Jan. 2023

[I34] "Short packets over wireless fading networks", Digital Futures Seminar, Stockholm, Sweden, Oct. 2022

[I33] "Short packets over wireless fading networks", Junior Conference on Wireless and Optical Communication (JWOC), Paris, France, Oct. 2022

[I32] "Short packets over wireless fading networks", Keynote talk, Workshop on short packet communications for 6G mission-critical applications, International Conference on Communications (ICC), May 2022

[I31] "Short packets over wireless fading networks", Plenary talk, Information Theory Workshop (ITW), Sep. 2021

[I30] "Fast-Rate Loss Bounds via Conditional Information Measures with Applications to Neural Networks", London Symposium on Information Theory, May 2021.

[I29] "Short-Packet Transmission via Variable-Length Codes in the Presence of Noisy Stop Feedback", DLR-MIT-TUM Workshop on Coding and Random Access, Munich, Germany, Feb. 2020.

[I28] "Playing with bits", Lunch talks at Ericsson Series, Gothenburg, Sweden, Sep. 2019.

[I27] "Fundamentals of short-packet transmission", Plenary talk at the Small-Data Networks Special Session, Int. Symp. Personal, Indoor and Mobile Radio Commun., Bologna, Italy, Sep. 2018

[I26] "Delay and peak-age violation probability in short-packet transmissions", Communication Theory Workshop (CTW), Miramar Beach, Florida, May 2018

[I25] "Short-packet over fading channels: pilot-assisted or noncoherent transmission?", NSF Workshop on Low-Latency Wireless Random-Access, MIT, Cambridge, MA, USA, Nov. 2017

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[I23] "Quantized precoding for massive MU-MIMO", Ericcson, Stockholm, Sweden, Nov. 2016

[I22] "Latency-reliability trade-off in short packet communications", Communication Theory Workshop (CTW), Nafplio, Greece, May 2016

[I21] "My path through information theory: From double asymptotics to finite blocklength", Claude Elwood Shannon 100th Birthday Celebration, Paderborn, Germany, May 2016

[I20] "How much energy is needed to transmit k bits over fading channels?", Technische Universität München (TUM), Dec. 2015

[I19] "Towards low-latency wireless communications: the art of sending short packets", GRD ISIS workshop on recent advances in network information theory and coding theory, Lyon, Nov. 2015

[I18] "Short packet communications with multiple antennas", Vienna University of Technology, Apr. 2015

[I17] "Short packet communications with multiple antennas", Nordic Workshop on System & Network Optimization for Wireless, Geilo, Norway, Mar. 2015

[I16] "Short packet communications with multiple antennas", Linköping University, Sweden, Mar. 2015

[I15] "Short packet communications with multiple antennas", Inf. Theory Applicat. Workshop (ITA), San Diego, CA, Feb. 2015

[I14] "Massive MIMO uplink with 1 bit ADC", Ericsson AB, Stockholm, Sweden, Nov., 2014

[I13] "On the cost of CSI acquisition in large MIMO systems", Communication Theory Workshop, Phuket, Thailand, Jun., 2013

[I12] "How costly is it to learn fading channels?", Linköping University, Sweden, Dec., 2012

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[I9] "MIMO for microwave backhaul links: research challenges", Ericsson AB, Gothenburg, Sweden, Mar. 2012

[I8] "How costly is it to learn a MIMO fading channel?", Ericsson research, Gothenburg, Sweden, Mar. 2012

[I7] "Degrees of freedom of multiple-antenna systems under channel uncertainty", Politecnico di Torino, Turin, Italy, Sep. 2011

[I6] "Degrees of freedom of multiple-antenna systems under channel uncertainty", KTH Royal Institute of Technology, Stockholm, Sweden, Sep. 2011

[I5] "Compressed sensing and beyond", Gothenburg University, Sweden, Aug. 2011

[I4] "Handling the data flood in wireless communications", Chalmers University of Technology, Gothenburg, Sweden, May 2010.

[I3] "On the noncoherent capacity of wireless channels of practical interest", Joint UMIC and ISS seminar, RWTH Aachen, Germany, Jun. 2009.

[I2] "On the capacity of real-world fading channels", ITG meeting—Algorithms for signal processing, Zurich, Switzerland, Mar. 2009.

[I1] "Capacity bounds for peak-constrained multiantenna channels," in *Third IEEE Workshop on Advanced Signal Processing for Wireless Communication Systems*, Copenhagen, Denmark, Nov. 2007.