

Temele de cercetare alocate fiecărei poziții vacante și bibliografia aferentă

Temele de cercetare și bibliografia pentru colocviul de admitere la doctorat, sesiunile iulie – septembrie 2026, domeniul Inginerie Electronică, Telecomunicații și Tehnologii Informaționale (IETTI), Facultatea de Electronică, Telecomunicații și Tehnologia Informației sunt prezentate în **Tabelul 1**.

Tabelul 1. Temele de cercetare și bibliografia pentru colocviul de admitere la doctorat, sesiunile iulie – septembrie 2026

Nr. crt.	Tema propusă	Conducătorul de doctorat	Bibliografia	Forma de finanțare
1	Proiectarea și analiza teoretică și experimentală a unor senzori purtabili (wearable)	Prof.univ.dr.ing. Horia Nicolai Teodorescu	[1] DOCUMENT ID: US 11835401 B2, US Patent Office, DATE PUBLISHED 12/5/2023 Sensors for Pressure, Forces, And Couples https://patents.google.com/patent/US11835401B2/en	1 loc taxă
2	Analiza răspunsurilor la evenimente ale unor rețele de socializare (X-Twitter)	Prof.univ.dr.ing. Horia Nicolai Teodorescu	[1] HN Teodorescu, Mironela PIRNAU, "Twitter's Mirroring of the 2022 Energy Crisis: What It Teaches Decision-Makers—A Preliminary Study", Romanian Journal of Information Science and Technology, Volume 26, Issue 3-4 Pages 312-322; [2] H. -N. Teodorescu, "On models of 'having friends' and SN friends distribution: Information propagation on social networks and disaster modeling", 2016 International Conference on Control, Decision and Information Technologies (CoDIT), Saint Julian's, Malta, 2016, pp. 659-664, doi: 10.1109/CoDIT.2016.7593641; [3] H. -N. Teodorescu and N. Saharia, "A semantic analyzer for detecting attitudes on SNs", 2016 International Conference on Communications (COMM), Bucharest, Romania, 2016, pp. 47-50, doi: 10.1109/ICComm.2016.7528201.	1 loc taxă
3	Dispozitive de alimentare autonomă și senzori bazați pe efectul triboelectric în polimeri	Prof.univ.dr.ing. Horia Nicolai Teodorescu	[1] MHM Teodorescu, HN Teodorescu, MG Hagan, "Sensors for pressure, forces, and couples", US Patent 11,835,401; [2] Horia-Nicolai Teodorescu, Yopa Prawatya, Thami Zeghloul, Lucian Dascalescu, "Anisotropy of the triboelectric effects in polymeric slabs", 2019, Tribology International, Volume 136 Pages 496-507; [3] H. -N. L. Teodorescu, "Seismic Energy Harvester for High Current Emergency Applications: Gas Valves and Alarms", 2022 International Conference on Applied Electronics (AE), Pilsen, Czech Republic, 2022, pp. 1-4, doi: 10.1109/AE54730.2022.9920103.	1 loc taxă
4	Studiul unor tehnologii de dispozitiv și circuit ce pot fi utilizate în îmbunătățirea funcționării circuitelor	Prof.univ.dr.ing. Horia Nicolai Teodorescu	[1] HNL Teodorescu, EF Iftene, "Efficiency of a combined protection method against correlation", International Journal of Computers Communications & Control 9 (1), 79-84; [2] HNL Teodorescu, EF Iftene, "Analysis of the code masking efficiency of chaotic clocks in microcontroller	1 loc taxă

			applications", 2010 3 rd International Symposium on Electrical and Electronics Engineering, 2010; [3] EF Iftene, HNL Teodorescu, "Protecting the code against side attacks using chaotically controlled clock and supply", Proceedings of the International Conference on ELECTRONICS, COMPUTERS Conf 2013.	
5	Contribuții la metode statistice în proiectarea sistemelor electronice	Prof.univ.dr.ing. Horia Nicolai Teodorescu	[1] M. Mehri, N. Masoumi and J. Rashed-Mohassel, "Trace Orientation Function for Statistical Prediction of PCB Radiated Susceptibility and Emission", in IEEE Transactions on Electromagnetic Compatibility, vol. 57, no. 5, pp. 1168-1178, Oct. 2015, doi: 10.1109/TEMPC.2015.2414353; [2] J. A. Russer, M. Haider, P. Russer, A. Baev and Y. Kuznetsov, "Cyclostationarity in EMI Assessment of PCBs", 2021 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRS), Boulder, CO, USA, 2021, pp. 268-269, doi: 10.23919/USNC-URSINRSM51531.2021.9336442; [3] E. Garcia, "Electromagnetic Compatibility Uncertainty, Risk, and Margin Management", in IEEE Transactions on Electromagnetic Compatibility, vol. 52, no. 1, pp. 3-10, Feb. 2010, doi: 10.1109/TEMPC.2009.2035108; [4] K. B. Hardin and C. R. Paul, "Decomposition of radiating structures using the ideal structure extraction methods (ISEM)", in IEEE Transactions on Electromagnetic Compatibility, vol. 35, no. 2, pp. 264-273, May 1993, doi: 10.1109/15.229430; [5] C. R. Paul, "A SPICE model for multiconductor transmission lines excited by an incident electromagnetic field", in IEEE Transactions on Electromagnetic Compatibility, vol. 36, no. 4, pp. 342-354, Nov. 1994, doi: 10.1109/15.328864; [6] R. Aloy, M.C. Casabán, L.A. Caudillo-Mata, L. Jódar, "Computing the variable coefficient telegraph equation using a discrete eigenfunctions method", Computers & Mathematics with Applications, Volume 54, Issue 3, August 2007, Pages 448-458.	1 loc taxă
6	Contributii la îmbunătățirea sistemelor de securitate cibernetică	Prof.univ.dr.ing. Daniela Tărniceriu	[1] Jie Wang; Zachary A. Kissel, "Base64 Encoding," in Introduction to Network Security: Theory and Practice, Wiley, 2015, pp.383-384, doi: 10.1002/9781119113102. [2] V. P, G. K, A. S and K. T, "Beyond Standard Methods: A Novel Image Encryption Scheme Combining Base64, Key Hashing, and Fragmentation for Robust Protection," 2064 International Conference on Cognitive Robotics and Intelligent Systems (ICC - ROBINS), Coimbatore, India, 2064, pp. 849-855, doi: 10.1109/ICC-ROBINS60238.2024.10533976.	1 loc taxă

7	Coduri corectoare de erori folosite în transmisii de date	Prof.univ.dr.ing. Daniela Tărniceriu	[1] P. PROAKIS - "Digital Communications", 4 th editions; [2] S. MOSER - "Advanced Topics in Information Theory - Lecture Notes", ETH Zurich; [3] KAI NIU, KAI CHEN, JIARU LIN, AND Q. T. ZHANG, "Polar Codes: Primary Concepts and Practical Decoding Algorithms".	1 loc buget
8	Arhitecturi hardware reconfigurabile pentru siguranța sistemelor AI în vehicule autonome	Prof.univ.dr.ing. Daniela Tărniceriu	[1] ISO 26262:2018; [2] NHTSA PE 22-002, 2022; [3] NTSB HAR-19/03, 2019; [4] Keen Security Lab, 2019; [5] NXP 4D Imaging Radar, 2025; [6] SpeyTech ASIL Cost Model, 2026; [7] EU Prod. Liability Directive, 2024.	1 loc buget
9	Proiectarea și implementarea de metode bazate pe inteligență artificială pentru testarea automată (BIST) a circuitelor integrate destinate aplicațiilor automotive.	Prof.univ.dr.ing. Liviu Goraș	[1] L. Goras, P. Ungureanu, L.O.Chus, "On Turing Instability in Nonhomogeneous Reaction-Diffusion CNN's", May 2017, IEEE Transactions on Circuits and Systems I Regular Papers PP(99):1-13.	1 loc buget
10	Macromodelarea unor circuite electronice pasive și active	Prof.univ.dr.ing. Liviu Goraș	[1] Daniele Romano, "Circuit synthesis techniques of rational models of electromagnetic systems: A tutorial paper", Int J of Numerical Modelling https://doi.org/10.1002/jnm.2612 .	1 loc taxă
11	Tehnici de analiză și clasificare a unor semnale biomedicale	Prof.univ.dr.ing. Liviu Goraș	[1] M. Negoita (Fira), L. Goras, "An ECG Signals Compression Method and Its Validation Using NNs", IEEE Transactions on Biomedical Engineering, Vol. 55, No. 4, 1319 – 1326, April 2008.	1 loc taxă
12	Studiul unor circuite electronice neliniare	Prof.univ.dr.ing. Liviu Goraș	[1] L. Goras, P. Ungureanu, L.O.Chus, "On Turing Instability in Nonhomogeneous Reaction-Diffusion CNN's", May 2017, IEEE Transactions on Circuits and Systems I Regular Papers PP(99):1-13.	1 loc taxă
13	Observability-Driven Closed-Loop Automation in Next-Generation Autonomous Networks: Architectures, Models, and Operator Transition Frameworks	Prof.univ.dr.ing. Ion Bogdan	[1] Abdelaziz Bensrhair, Thierry Bapin (editors), „From AI to Autonomous and Connected Vehicles”, Wiley, 2021; [2] Wiliam Stalling, „5G Wireless, A Comprehensive Introduction”, Addison Wesley, 2021.	1 loc taxă
14	Modelare, optimizare și securizare cross-layer a comunicației intra- și intervehiculare pentru percepție cooperativă în vehicule autonome conectate	Prof.univ.dr.ing. Ion Bogdan	[1] Pawel Gora, Inga Rüba, "Traffic models for self-driving connected cars", Science Direct, Transportation Research Procedia 14 (2016) 2207 – 2216; [2] Stéphanie Lefèvre, Dizan Vasquez, and Christian Laugier, "A survey on motion prediction and risk assessment for intelligent vehicles", ROBOMECH Journal, A SpringerOpen Journal, http://www.robomechjournal.com/content/1/1/1	1 loc buget
15	Proiectarea și implementarea asistată de inteligență artificială a arhitecturilor de procesare digitală a semnalelor pentru sisteme de senzori integrați	Prof.univ.dr.ing. Iulian Aurelian Ciocoiu	[1] Chen, L. Et al., „AI-Driven Sensing Technology: Review”, Sensors, vol. 24(10): 2958, 2024; [2] Prochazka, A, et al., „Emerging Integrating Approach to Sensors, Digital Signal Processing, Communication Systems, and Artificial Intelligence”, Sensors, vol. 26(7): 2239.	1 loc buget

16	Aplicații ale arhitecturilor de tip deep learning în medicină	Prof.univ.dr.ing. Iulian Aurelian Ciocoiu	[1] Pavel, I., Ciocoiu, I.B., „COVID-19 Detection from Cough Recordings Using Bag-of-Words Classifiers”, Sensors, vol. 23, 4996, 2023; [2] Onica, I, Ciocoiu, IB, “Explainable Combined Spatial Representations for ECG Arrhythmia Classification”, MAKE, vol. 8. 114, 2026.	1 loc taxă
17	Aplicații ale arhitecturilor de tip deep learning în viziune computerizată	Prof.univ.dr.ing. Iulian Aurelian Ciocoiu	[1] I. Goodfellow, Y. Bengio, A. Courville, “Deep Learning”, MIT Press, 2017; [2] R. Szelinski, “Computer Vision: Algorithms and Applications”, Springer, 2020.	1 loc taxă
18	Contribuții cu privire la implementarea eficientă a unor blocuri cheie din domeniul multimedia	Prof.univ.dr.ing. Doru Florin Chiper	[1] D.F.Chiper, "A Novel VLSI DHT Algorithm for a Highly Modular and Parallel Architecture", IEEE Transactions on Circuits and Systems-II, vol. 60, no. 5, pp. 282-286, 2013.	1 loc taxă
19	Contribuții la dezvoltarea unor blocuri multimedia care să încorporeze eficient tehnici de securitate hardware	Prof.univ.dr.ing. Doru Florin Chiper	[1] D.F.Chiper, "A Novel VLSI DHT Algorithm for a Highly Modular and Parallel Architecture", IEEE Transactions on Circuits and Systems-II, vol. 60, no. 5, pp. 282-286, 2013.	1 loc taxă
20	Contribuții la optimizarea unor blocuri cheie folosite în securitatea cibernetică	Prof.univ.dr.ing. Doru Florin Chiper	[1] Igor Shparlinski, "Number Theoretic Methods in Cryptography"; [2] Bart Preneel Vincent Rijmen (Eds.), "State of the Art in Applied Cryptography".	1 loc taxă
21	Contribuții la optimizarea unor blocuri cheie folosite în criptografie	Prof.univ.dr.ing. Doru Florin Chiper	[1] Igor Shparlinski, "Number Theoretic Methods in Cryptography"; [2] Bart Preneel Vincent Rijmen (Eds.), "State of the Art in Applied Cryptography".	1 loc taxă
22	Controlul convertoarelor de putere cu variabile de stare	Conf.univ.dr.ing. Dorin O. Neacșu	[1] Mihai Lucanu, „Convertoare performante de curent continuu”, Ed. Printech, București, 1997; [2] Dorin O. Neacșu, "Manual de proiectarea sistemelor automate de control în MATLAB", Ed. Tehnopress, Iasi, Romania, July 2014, ISBN-13: 9786066871136.	1 loc taxă
23	Fiabilitatea convertoarelor de putere	Conf.univ.dr.ing. Dorin O. Neacșu	[1] Mihai Lucanu, „Convertoare performante de curent continuu”, Ed. Printech, București, 1997; [2] Dorin O. Neacșu, "Manual de proiectarea sistemelor automate de control în MATLAB", Ed. Tehnopress, Iasi, Romania, July 2014, ISBN-13: 9786066871136.	1 loc taxă
24	Contribuții privind detecția, identificare și monitorizare mediului rutier utilizând comunicații radio	Prof.univ.dr.ing. Radu Gabriel Bozomitu	[1] J. G. Proakis, M. Salehi, "Digital communications", McGraw-Hill, Higher Education, New York, NY 10020, 2008 2008; [2] B. Sklar, “Digital Communications: Fundamentals and Applications”, Prentice Hall, Upper Saddle River, New Jersey 07458, USA, 2001; [3] M. Rice, "Digital communications: a discrete-time approach", Prentice Hall, 2009; [4] F. Ling, "Synchronization in digital communication systems", Cambridge University Press, 2017;	1 loc buget

			[5] H. Schulze and C. Lüders, "Theory and applications of OFDM and CDMA: Wideband wireless communications", John Wiley & Sons, Ltd, 2005; [6] R. G. Bozomitu, "Radiocomunicații avansate", Iași, 2024.	
25	Sisteme de interfațare om-calculator și creier-calculator	Prof.univ.dr.ing. Dan Marius Dobrea	[1] D.M. Dobrea, M.C. Dobrea, "A MANFIS model of the 3D head position based on a wearable system", Romanian Journal of Information Science and Technology, vol. 21, no. 4, 2018, pp. 377-391, ISSN 1453-8245; [2] D.M. Dobrea, M.C. Dobrea, "EEG Classification System – From an Universal System Implementation to a Particular Signal Modeling", Proceedings of the Romanian Academy - Series A: Mathematics, Physics, Technical Sciences, Information Science, vol. 10, no. 2, May-August 2009, pp. 197-204, ISSN 1454-9069.	1 loc taxă
26	Drone & UAV	Prof.univ.dr.ing. Dan Marius Dobrea	[1] D.M. Dobrea, M.C. Dobrea, "An autonomous UAV system for video monitoring of the quarantine zones", Romanian Journal of Information Science and Technology, vol. 23, no. 5, 2020, pp. S53-S66, ISSN 1453-8245; [2] D.M. Dobrea, M.C. Dobrea, "An L-Band EMI Analysis of Different Components Used with the NXP HoverGames UAV", E-Health and Bioengineering Conference (EHB), Nov. 17-18, 2022, România, Iași, ISBN 978-166548557-9, eISSN 2575-5145.	1 loc buget
27	Inteligență artificială, sisteme inteligente și algoritmi bioinșpirați	Prof.univ.dr.ing. Dan Marius Dobrea	[1] M.C. Dobrea, D.M. Dobrea, "A bio-inspired solution for a local autonomous, reflex, obstacle avoiding behavior", International Symposium on Signals, Circuits, and Systems, ISSCS 2011, June 30 – July 1, 2011, România, Iași, pp. 177-180, ISBN: 978-1-61284-942-3; [2] D.M. Dobrea, A. Sirbu, M.C. Dobrea, "A Self-Evolving Controller for a Physical Robot: A New Introduced Avoiding Algorithm", 12th Middle Eastern Simulation and Modelling Conference (MESM) and 2nd GAMEON-Arabia Conference (Edited by Marwan Al-Akaidi and Ken Newman, Publication of Eurosis-ETI, Printed in Ghent, Belgium), November 14-16, 2011, Arab Open University, Amman, Jordan, pp. 65-70, ISBN: 978-90-77381-67-0.	1 loc buget
28	Sisteme inteligente de percepție și recunoaștere pentru vehicule autonome	Prof.univ.dr.ing. Dorel Aiordăchioaie	[1] L. J. Karam, <i>et al</i>, "Autonomous Driving: Part 1- Sensing and Perception," in IEEE Signal Processing Magazine, vol. 37 (4), pp. 11-13, 2020, doi: 10.1109/MSP.2020.2990330; [2] P. Closas, <i>et al</i>, "Emerging trends in signal processing and machine learning for positioning, navigation and timing information: special issue editorial", <i>EURASIP J. Adv. Signal Process.</i> 2024, 84, doi: 10.1186/s13634-024-01182-8.	1 loc taxă

29	Sisteme IoT inteligente	Prof.univ.dr.ing. Adrian Brezulianu	[1] "Internet of Things: A Comprehensive Overview" – Journal: Discover Internet of Things (Springer); DOI: 10.1007/s43926-024-00084-3; <https://link.springer.com/article/10.1007/s43926-024-00084-3>; Publication Date: January 2024; [2] "An Overview of IoT Architectures, Technologies, and Existing Open-Source Projects"; Authors: Tomás Domínguez-Bolaño, Omar Campos, Valentín Barral, Carlos J., Escudero, José A. García-Naya; Published: January 27, 2024; DOI: 10.48550/arXiv.2401.15441 <https://arxiv.org/abs/2401.15441> [3] "Smart IoT for Research and Industry"; Editors: Melody Moh, Kanta Prasad Sharma, Rashmi Agrawal, Vicente Garcia Diaz; Publisher: Springer; Series: EAI/Springer Innovations in Communication and Computing; Publication Date: July 16, 2021; ISBN: 978-3-030-71485-7; [4] "Internet of Things Platforms for Academic Research and Industrial Applications"; Authors: Luca De Nardis, Alireza Mohammadpour, Giuseppe Caso, Usman Ali, Maria-Gabriella Di Benedetto; Journal: Applied Sciences, Volume: 12, Issue: 4; Publication Date: February 19, 2022; DOI: 10.3390/app12042172; <https://doi.org/10.3390/app12042172>	1 loc buget
30	Sisteme IoT inteligente	Prof.univ.dr.ing. Adrian Brezulianu	[1] "Internet of Things: A Comprehensive Overview" – Journal: Discover Internet of Things (Springer); DOI: 10.1007/s43926-024-00084-3; <https://link.springer.com/article/10.1007/s43926-024-00084-3>; Publication Date: January 2024; [2] "An Overview of IoT Architectures, Technologies, and Existing Open-Source Projects"; Authors: Tomás Domínguez-Bolaño, Omar Campos, Valentín Barral, Carlos J., Escudero, José A. García-Naya; Published: January 27, 2024; DOI: 10.48550/arXiv.2401.15441 <https://arxiv.org/abs/2401.15441> [3] "Smart IoT for Research and Industry"; Editors: Melody Moh, Kanta Prasad Sharma, Rashmi Agrawal, Vicente Garcia Diaz; Publisher: Springer; Series: EAI/Springer Innovations in Communication and Computing; Publication Date: July 16, 2021; ISBN: 978-3-030-71485-7; [4] "Internet of Things Platforms for Academic Research and Industrial Applications"; Authors: Luca De Nardis, Alireza Mohammadpour, Giuseppe Caso, Usman Ali, Maria-Gabriella Di Benedetto; Journal: Applied Sciences, Volume: 12, Issue: 4; Publication Date: February 19, 2022; DOI: 10.3390/app12042172; <https://doi.org/10.3390/app12042172>	1 loc taxă