
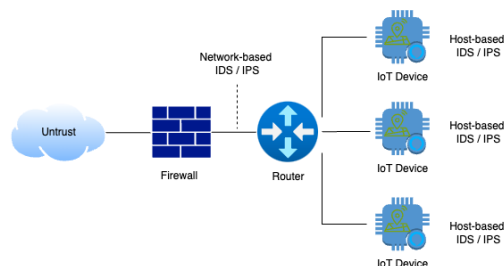
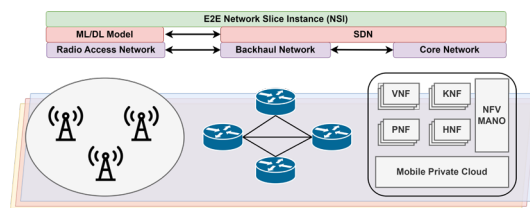


UNIFIED COMMUNICATIONS IN CLOUD

Contact details

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Areas of expertise

Telecommunications Networks

Switching and routing; Computer networks; Internet protocols; Unified Communications in Cloud; Software-defined networking; Network security; Cyber-security; Quality of Service in Next-Generation Networks; IoT platforms; DevNet.

Team

Prof. Virgil Dobrota, Ph.D.; Assoc. Prof. Daniel Zinca, Ph.D.; Assist. Prof. Tudor-Mihai Blaga, Ph.D., Assist. Prof. Andrei-Bogdan Rus, Ph.D., Assist. Prof. Iustin-Alexandru Ivanciu, Ph.D.; Assist. Robert Botez, Ph.D. student; Gabriel Lazar, System Administrator; Gheorghe-Romeo Andreica, Ph.D. student; Diana Deac, Ph.D. student; Catalin-Marian Petrutu, Ph.D. student; Alin-Tudor Sferle, Ph.D. student; Radu Bacila, Ph.D. student.

Representative projects

CYBERSECURITY SEMINARS "Bringing hands-on training in cybersecurity to European universities", Google.org, <https://cybersecurityseminars.utcluj.ro/prezentare.html> (2025-2026)

FRIEND-NOW "FutuRe telecommunication InfrastructurEs aND Next-generatiOn netWorks Education Program", Project ID 101128194, <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43353764/101128194/ERASMUS2027/> (2023-2025)

EU+ " European University of Technology", <https://www.univ-tech.eu/> (2020-2026)

CLOUDUT "Cloud Cercetare UTCN", Contract No. 235/21.04.2020, POC, MySMIS ID:124493, <https://cloudut.utcluj.ro/en/> (2020-2022)

URBIVEL "Advanced Technologies for Intelligent Urban Electric Vehicles", ID P_40_333 project, POC-A1-A1.2.3, <https://urbivel.utcluj.ro/> (2016-2020)

DIONASYS "Declarative and Interoperable Overlay Networks, Applications to Systems of Systems", CHIST-ERA project, <https://www.dionasys.eu/> (2015-2018)

UCONNECT "Implementation of Ubiquitous Connectivity for Public Transport", FP7-SME-2012-1/315161 project, <https://cordis.europa.eu/project/rcn/105670/factsheet/en> (2012-2014)

4WARD "Architecture and Design for the Future Internet", FP7-ICT-2007-1 No. 216041 project, <https://cordis.europa.eu/project/rcn/85316/factsheet/en> (2008-2010)

Significant results

The most representative publications of the past 5 years:

1. G.M. Oltean, A.B. Rus, D. Zinca and V. Dobrota, "Customized xApp for OpenRAN Compliant Deployment: A 5G Standalone Approach", ACTA TECHNICA NAPOCENSIS, Electronics and Telecommunications, ISSN 1221-6542, Vol.65, No.2, 2025, pp.25-31.

2. R. Botez, D. Zinca and V. Dobrota, "Redefining 6G Network Slicing: AI-Driven Solutions for Future Use Cases", *Electronics* 2025, 14(2), 368; <https://doi.org/10.3390/electronics14020368>, WOS:001405206600001 (Q2 Journal).
3. D. Oroian, R. Bolboaca, A.S. Roman, and V. Dobrota, "Network Intrusion Detection System Using Anomaly Detection Techniques", 2024 IEEE 20th International Conference on Intelligent Computer Communication and Processing ICCP 2024, Cluj-Napoca, October 17-19, 2024, pp. 1-8, Electronic ISSN: 2766-8495, DOI: 10.1109/ICCP63557.2024.10793023, WOS:001450074600012.
4. G.R. Andreica, G.L. Tabacar, D. Zinca, I.A. Ivanciu and V. Dobrota, "Denial of Service Attack Prevention and Mitigation for Secure Access in IoT GPS-based Intelligent Transportation Systems", *Electronics* 2024, 13(14), 2693; <https://doi.org/10.3390/electronics13142693>, WOS:001277655900001 (Q2 Journal).
5. R. Botez, A.T. Sferle, I.A. Ivanciu and V. Dobrota, "Work-in-Progress: KubeUT: A Cloud-Agnostic Kubernetes Management Platform", *Proceedings of the 11th International Black Sea Conference on Communications and Networking BlackSeaCom 2023*, Istanbul, Turkiye, 2023, pp. 384-389, doi: 10.1109/BlackSeaCom58138.2023.10299745.
6. A.T. Costin, D. Zinca, and V. Dobrota, "A Real-Time Streaming System for Customized Network Traffic Capture", *Sensors* 2023, 23(14), 6467; <https://doi.org/10.3390/s23146467>, WOS:001036373600001 (ISI Q2 Journal).
7. R. Botez, A.G. Pasca, A.T. Sferle, I.A. Ivanciu, and V. Dobrota, "Efficient Network Slicing with SDN and Heuristic Algorithm for Low Latency Services in 5G/B5G Networks", *Sensors* 2023, 23(13), 6053; <https://doi.org/10.3390/s23136053>, WOS:001030144200001 (ISI Q2 Journal).
8. A.G. Mari, D. Zinca, and V. Dobrota, "Development of a Machine-Learning Intrusion Detection System and Testing of Its Performance Using a Generative Adversarial Networks", *Sensors* 2023, 23(3), 1315; <https://doi.org/10.3390/s23031315>, WOS:000930773600001 (ISI Q2 Journal).
9. D. Deac, E. Teshome, R Van Glabbeek, V. Dobrota, A. Braeken, K. Steenhaut, "Traffic Aware Scheduler for Time-Slotted Channel-Hopping-Based IPv6 Wireless Sensor Networks", *Sensors* 2022, 22(17), 6397; <https://doi.org/10.3390/s22176397>, WOS:000851975400001 (ISI Q2 Journal).
10. D.A. Margin, I.A. Ivanciu and V. Dobrota, "Deep Reservoir Computing Using Echo State Networks and Liquid State Machine", *Proc. of the 10th Intl. Black Sea Conf. on Communications and Networking BlackSeaCom 2022*, Sofia, June 6-9, 2022, pp. 208-213, doi: 10.1109/BlackSeaCom54372.2022.9858322, WOS:000865848800036.
11. A.F. Sicoe, R. Botez, I.A. Ivanciu and V. Dobrota, "Fully Automated Testbed of Cisco Virtual Routers in Cloud Based Environments", *Proc. of 10th Intl. Conf. BlackSeaCom 2022*, Sofia, June 6-9,2022, pp.49-53, doi: 10.1109/BlackSeaCom54372.2022.9858288, WOS:000865848800009.
12. A.T. Costin, D. Zinca and V. Dobrota, "LAN traffic capture applications using the libtins library", *Electronics* 2021, ISSN: 2079-9292, Special Issue: "Real-Time Systems, Cyber-Physical Systems and Applications", *Electronics* 2021, 10(24), 3084; <https://doi.org/10.3390/electronics10243084>, WOS:000742426500001 (ISI Q3 Journal).
13. R. Botez, J. Costa-Requena, I.A. Ivanciu, V. Strautiu, V. Dobrota, "SDN-based Network Slicing Mechanism for a Scalable 4G/5G Core Network: A Kubernetes Approach", *Sensors* 2021, 21(11), 3773; <https://doi.org/10.3390/s21113773>, ISSN: 1424-8220, WOS:000660676800001 (ISI Q1 Journal).
14. R. Botez, I.A. Ivanciu, C.M. Iurian, V. Dobrota, "Quantum Implementation of the Modified Dijkstra's Routing Algorithm", *Proceedings of the Romanian Academy - Series A*, ISSN 1454-9069, Vol. 22, No. 41, January - March 2021, pp. 91-98, Romanian Academy Publishing House, WOS:000635594600011 (ISI Q2 Journal).
15. E. Teshome, D. Deac, S. Thielemans, M. Carlier, K. Steenhaut, A. Braeken, V. Dobrota, "Time Slotted Channel Hopping and ContikiMAC for IPv6 Multicast Enabled Wireless Sensor Networks", *Sensors* 2021, 21(5), 1771; <https://doi.org/10.3390/s21051771>, ISSN: 1424-8220, WOS:000628863900001 (ISI Q1 Journal).

Significant solutions: SDN-based Network Slicing Mechanism for a Scalable 4G/5G Core Network; Machine-Learning Intrusion Detection System using Generative Adversarial Networks; Quantum computing implementation of Modified Dijkstra's Algorithm; Seamless Connectivity for Intra/ Inter-Cloud Applications; Automatic Deployment of Infrastructure and Services for a Private Cloud Orchestrated by OpenStack; Active Measurements of the One-Way Delay.

The offer addressed to the economic environment.

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|------------------------|--|
| Research & development | SDN and NFV implementations based on Kubernetes; Development of a solution for permanent Internet connection independent to the network access technologies; Development of implementation for automatic management in cloud; Efficient Network Slicing with SDN and Heuristic Algorithm for Low Latency Services in 5G/B5G/6GNetworks; |
| Consulting | Consulting, design, research, and prototyping towards development of private cloud solutions; Evaluation of security vulnerabilities in computer networks and operating systems; IP-based solution for unified communications; DevNet solutions. |
| Training | Cisco Networking Academy programs offered by UC Labs staff: https://el.el.obs.utcluj.ro/cisco/ CCNA: Introduction to Networks (IN), version 7.02; CCNA: Routing, Switching and Wireless Essentials (RSWE), version 7.02; CCNA: Enterprise Networking, Security and Automation (ENSA), version 7.02; IoT Fundamentals: IoT Security, version 1.1; CyberOps Associate, version 1.02; DevNet Associate, version 1.01; |