




COMMUNICATIONS NETWORKS AND PROTOCOLS RESEARCH LAB

Contact details

Name	Communications Networks and Protocols Research Lab	
Acronym	LabRPC	
Logo		
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Areas of expertise

Computer and communication networks, Communication protocols

- development of frameworks for efficient data transmissions within hybrid computer networks optimizing the use of available bandwidth; - design and implementation of Quality of Service aware frameworks; - security and virtualization

Wireless Sensor Networks

- development of new methods for routing within sensor networks, efficient use of resources and secure access to WSNs; - development of specific applications (Internet of Things) with WSNs, Sensors-Cloud systems

Grid communications

- grid based applications development (intensive computing, specific management)

Smart vehicular ad hoc networks, Smart Energy Grids

- development of smart communication protocols, integration of real-time decision making algorithms

Software products

- wireless and sensors communications, adaptive routing, secure communications, benchmarking

Team

Prof. Dr. Eng. Vasile Teodor Dadarlat, Assoc. Prof. Dr. Eng. Emil Cebuc, Assoc. Prof. Dr. Eng. Adrian Peculea, Assist. Prof. Dr Eng. Bogdan Iancu

Representative projects

Brained City: Dezvoltarea Inovativa prin Informatizare a Ecosistemului urban Cluj-Napoca", innovative project belong to IT Cluster ClujIT financed by POSCCE/Operation 1.3.3, subproject **"E-Health WSN Middleware: Middleware pentru adaptarea echipamentelor eterogene medicale si ale pacientilor existente utilizand o infrastructura WSN"** UTCN/AC director: Prof. dr. ing. Vasile-Teodor Dadarlat.

"Analiza si taxonomia solutiilor de compromis intre securitate si calitatea serviciilor pentru comunicatiile IP wireless si mobile", proiect postdoctoral POSDRU/159/1.5/S/137516 perioada: 01.05.2014-31.10.2015, responsible project: S.L. dr. ing. Adrian Peculea

GREEN-VANETS: Improving transportation using Car-2-X communication and multi agent systems, Intern CDI research project at Technical University of Cluj-Napoca, 1 October 2013 - 30 September 2014, member: Senior Lecturer Dr Eng. Bogdan IANCU

QAF, "Quality of Service aware frameworks for networks and middleware", CNCSIS PNII Idei nr. 328, http://www.cs.utcluj.ro/csd/pics/Projects/VDadarlat/en_index.html (2007 – 2010), coordinator: Prof. dr. ing. Vasile-Teodor Dadarlat

CG-UTCN, Technical University of Cluj-Napoca GRID Center, POS CCE Axa 2; Project 195, Op. 2.2.3,

Significant results

The most representative publications of the past 5 years:

1. Hațegan, Peculea, Dădărlat, Cebuc, Secure and Extensible Smart Home Template, 17th RoEduNet Conference: Networking in Education and Research, September 6-8, 2018.
2. I. Iancu and B. Iancu, "Elderly in the Digital Era. Theoretical Perspectives on Assistive Technologies," *Technologies*, vol. 5, no. 3, p. 13, Sep 2017, Art. no. 60.
3. Iancu B., Kovacs R., Dadarlat V., Interconnecting Heterogeneous Non-smart Medical Devices using a Wireless Sensor Networks (WSN) Infrastructure, INTERNATIONAL CONFERENCE ON ADVANCEMENTS OF MEDICINE AND HEALTH CARE THROUGH TECHNOLOGY, MEDITECH 2016 Book Series: IFMBE Proceedings Volume: 59 Pages: 207-212 Published: 2017
4. Radu, A. Costan, B. Iancu, V. Dadarlat, A. Peculea, "Intercloud platform for connecting and managing heterogeneous services with applications for e-health", *RO-LCG Conference*, Cluj-Napoca, Romania, Oct. 2015.
5. Peculea, V. Dadarlat, E. Cebuc, B. Iancu, Test bench for routing optimization algorithms in Proxy Mobile IPv6 environments, *2015 14th RoEduNet International Conference - Networking in Education and Research (NER'2015)*, Craiova, Romania, 24-29 September 2015.
6. Peculea, B. Iancu, V. Dadarlat, E. Cebuc, A. Costan, "Framework for testing Proxy Mobile IPv6 functionalities", *Automation, Computers, Applied Mathematics (ACAM) Journal*, Vol. 22:2, pp.243-246, 2015.
7. V. Muresan, A. Groza, B. Iancu, I. Clitan, "Simulation and Control of the Vehicles Movement in the Case of the Overtaking Procedures", *5th International Conference on Aerospace, Robotics, Biomechanics, Neurorehabilitation, Human motricities, Mechanical Engineering and Manufacturing Systems (ICMERA2014)*, Bucuresti, Romania, 24-27 October 2014
8. Groza, B. Iancu, A. Marginean, "A multi-agent approach towards cooperative overtaking in vehicular networks", *4th International Conference on Web Intelligence, Mining and Semantics, Workshop on Applications of Software Agents*, June 2-4, 2014 - Thessaloniki, Greece. [ACM, DBLP]
9. Groza, A. Marginean, B. Iancu, "Towards improving situation awareness during emergency transportation through Ambulance-2-X communication and semantic stream reasoning", *4th International Conference on Advancements of Medicine and Health Care through Technology – MediTech2014*, 5-7 June 2014. [Springer, IEEE]

Significant solutions:

1. Drafting, development and implementation of a novel end-to-end quality of service sensitive framework for heterogeneous networks with admission control and self-adaptive bandwidth reconfiguration
2. Elaborating and proposing a new method for bandwidth organizing and dynamic allocation of bandwidth between classes in an autonomous system, to assure end-to-end QoS guarantees

Products and technologies:

1. Data Center Room (str. Baritiu 26-28): HVAC system and hosts site grid with 512 core and 12 Terrabytes storage

Patents:

1. B. Iancu, A. Peculea, V. Dadarlat, "QoS sensitive framework for real-time transmission of information in heterogeneous computer networks and dynamic bandwidth allocation method", no. A/10017/2010, 2010

Awards

1. B. Iancu, A. Peculea, V. Dadarlat – Diploma of Honour at the International Exhibition of Research, Innovation and Technological Transfer "Inventica", Iași, 2011
2. B. Iancu, A. Peculea, V. Dadarlat - Excellence Award and Silver Medal at the International Exhibition of Inventions 'ProInvent', Cluj-Napoca, 2011
3. B. Iancu, A. Peculea, V. Dadarlat - Silver Medal at the 3rd European Exhibition of Creativity and Innovation 'Euroinvent', Iași, 2011
4. Peculea, B. Iancu, V. Dadarlat - Excellence Award and Gold Medal at the International Exhibition of Inventions 'ProInvent', Cluj-Napoca, 2010

The offer addressed to the economic environment

Research & development	Network administration QoS services implementation Green smart VANETS Wireless and sensors communications in Internet of Things Algorithms for power consumption in WSNs Algorithms for QoS aware routing in hybrid networks Development of applications with high degree of computing requirements
Consulting	Network administration QoS services implementation
Training	CCNA, CCNP, security essentials Advanced issues in computer networks Advanced issues in wireless sensor networks