The 12th International Conference on Virtual Learning
VIRTUAL LEARNING – VIRTUAL REALITY

Phase II - Period 2010-2020: e-Skills for the 21st Century
Phase III - Period 2020-2030: Intelligence Learning –
Knowledge Society and Learning Culture

www.icvl.eu | www.cniv.ro
The ICV and CNIV projects supports Digital Agenda-Europe 2020

ISSN: 1844-8933 - ISI Proceedings, accessed via Web of Science, since year 2006

THOMSON REUTERS

ICVL 2017 dedicated acad. O. ONICESCU and acad. Gh. MIHOC,
Romanian School of probabilities and mathematical statistics

ICVL and CNIV Coordinator: PhD. Marin Vlada, University of Bucharest

---

The printing of Proceedings was sponsored by the Romanian Ministry of Research and Innovation, EUROPE - ROMANIA

All rights reserved; partial or total reproduction of this text, its multiplication in any form and by any means – electronic, mechanical, photocopying, recording or otherwise –, public delivery via internet or other electronic net, storage in a retrieval system for commercial purposes or charge-free, as well as other similar actions committed without the written permission of the publishers represent violations of the intellectual property rights legislation and are punishable under the criminal and/or civil law in force.

Proceedings of the 12th International Conference On Virtual Learning

OCTOBER 28, 2017

MODELS & METHODOLOGIES, TECHNOLOGIES, SOFTWARE SOLUTIONS
Phase II - Period 2010-2020: e-Skills for the 21st Century

editura universității din bucurești, 2017

ICVL and CNIV Partners: Grigore Albeanu, Mircea Popovici, Radu Jugureanu, Adrian Adăscăliței, Olimpius Istrate

www.icvl.eu www.cniv.ro

ISSN: 1844-8933 - ISI Proceedings,
accessed via Web of Science, since year 2006

THOMSON REUTERS

© Bucharest University Press
Şos. Panduri, nr. 90-92, BUCUREŞTI – 050663;Tel.Fax: 021.410.23.84
E-mail: editura@g.unibuc.ro
Librărie online: www.librarie-unibuc.ro
Centru de vânzare: Bd. Regina Elisabeta, nr. 4-12, Bucureşti,
Tel. (004) 021.305 37 03
Web: www.editura-unibuc.ro

Desktop publishing: Cătălin Ionuţ Mihai

MOTTO

„The informatics/computer science re-establishes not only the unity between the pure and the applied mathematical sciences, the concrete technique and the concrete mathematics, but also that between the natural sciences, the human being and the society. It restores the concepts of the abstract and the formal and makes peace between arts and science not only in the scientist' conscience, but in their philosophy as well."

Gr. C. Moisil (1906-1973)
Professor at the Faculty of Mathematics, University of Bucharest,
Member of the Romanian Academy,
Computer Pioneer Award of IEEE, 1996
http://www.icvl.eu/2006/grcmoisil

"Learning is evolution of knowledge over time"

Roger E. Bohn
Professor of Management and expert on technology management,
University of California, San Diego, USA,
Graduate School of International Relations and Pacific Studies
http://irps.ucsd.edu/faculty/faculty-directory/roger-e-bohn.htm

GENERAL CONTENTS

About ICVL 2017 15

Section M&M
MODELS & METHODOLOGIES 25

Sections TECH
TECHNOLOGIES & VIRTUAL LABORATORY 269

Sections SOFT
SOFTWARE SOLUTIONS 381

Section Intel® Education
INNOVATION IN EDUCATION AND RESEARCH 439

Authors Index 521

C O N T E N T S

Paper No.	PAPER TITLE AND AUTHOR(S)	Page No.
Section Models & Methodologies		
1	History of Informatics. From recursivity to the Turing universal machine and Horn clauses Marin Vlada, Adrian Adăscăliței	27
2	Ștefan Odobleja: A Scientific Visionary, precursor of Cybernetics and Artificial Intelligence Marin Vlada, Adrian Adăscăliței	44
3	An Overview on the Contributions of the Academician Octav Onicescu to the Informational Statistics and Further Developments Mihaela Oprea	54
4	On the Development of an Educational Ontology for Logic Programming Mihaela Oprea	63
5	Testing applications online using ASP.NET framework Doru Anastasiu Popescu, Gabriel Boroghină	70
6	User Behavior Characteristics for Mobile and Web Applications Alin Zamfiroiu Radu Boncea, Carmen Rotună	78
7	Computer use in speech pathology practice. Synthesis Report of TIMLOGORO project Pânișoară Georgeta, Făt Silvia, Sandu Cristina	85
8	A Flexible Method to Teach Astronomy using Virtual Lab Approach and Real Data Afrodita Liliana Boldea	91
9	Cartography teaching website – online tool for supporting geography higher education Gabriela Osaci-Costache, Octavian Cocoș	98
10	PERRYBOT rover – an example of Physics learning in a STEM PBL approach Serenella Dinu, Emil Stefan Barna	105
11	Approaches of Educational Technologies of Open Systems Alena Stupina, Larisa Korpacheva, Irina Bagdasarian, Svetlana Globa	113

12	Video vs Audio Input for Developing Listening Skills in an Online EFL Course Natalia Sazonova, Julia Troshina	120
13	Methodical aspects of remote trainings for unemployed people Mikhail Kuznetsov	126
14	Interactive forms of teaching “pilgrim tourism”: creation and use in distance training of managers of tourism Polina Ananchenkova, Svetlana Bazhenova	131
15	The use of e-Learning technologies in orphans training programs Olga Volkova, Oksana Besschetnova, Polina Ananchenkova	136
16	Application of educational technical tools foranalysis the color of essential oils from white oregano Zlatin Zlatev, Stanka Baycheva	141
17	Online Collaboration for Improving the Quality of Training Course for Craft Tapestry In Egypt Nedeva Veselina, ElNasharElSayed A., Zlatev Zlatin	145
18	The Benefits of G Suite for Education on the Experience of Trakia University – Stara Zagora Nedeva Veselina, Karabaliev Miroslav	151
19	The Benefits of Combining Social Media and e-learning for Training Improving in FTT Yambol Nedeva Veselina, Dineva Snejana	158
20	Options for e-evaluation of the theoretical training of students of pedagogical disciplines Ivanka Nikolaeva Shivacheva-Pineda	165
21	Metasystems Learning Design Theory and Information Visualization Elena Railean	170
22	Incorporating Group Projects in E-Learning: Challenges for the Educators Joanna Dzionek-Kozłowska, Tony Broadwick	176
23	Identity Criteria, Knowledge Formation and Conformity Conceptsin Learning Space Dragoș Iliescu	183
24	Chaos as Art principle - Reason for Composition Imbalance Vaska Sandeva, Katerina Despot, Tamara Veselinova	190

25	Similarities and differences between design and artwork Katerina Despot, Vaska Sandeva	198
26	Developing Ontology-based Mental Models for Virtual Learning Zhengxin Chen	204
27	Get to Know Your Own Mental Model: On the Role of Term Projects in Graduate Level Computer Science Courses Zhengxin Chen	208
28	E-Portfolio - a complementary assessment method in continuous training programs Horaţiu Catalano	214
29	Primary Grades Teachers' Perceptions of a Mathematics and Environmental Exploration Digital Textbook Ioana Cristina Magdaș, Sanda-Raveca Buzilă, Maria Eliza Dulamă, Oana-Ramona Ilovan, Leon Buzilă	218
30	Interactive Multimedia Learning Activities (IMLA) in a Digital Textbook Sanda-Raveca Buzilă, Liliana Ciascai, Maria Eliza Dulamă, Oana-Ramona Ilovan, Sorin-Alin Kosinszki	224
31	A Comparative Docimologic Perspective on the European and Romanian Education Landscape Câmpean Ioana-Maria	230
32	Social Learning Impact of 3D Computer Animated Movies for Children - Means of Curricular Adaptations through Integrated Activities in Preparatory Classes Stanca-Maria Iurean	236
33	New E-learning Platforms and Projects to Re-shape Modern On-line Education Eugen Zaharescu, Atena Georgeta Zaharescu	242
34	From STEM to STEAM through flipped classroom. Imitation as a semantic mark Gabriela Ileana Crișan, Ion Albulescu	249
35	Digital Competence in Learning English as a Foreign Language – Opportunities and Obstacles Norica-Felicia Bucur , Oana-Rica Popa	257
36	Computer implementation in primary school teaching Cornelia Ştefănescu, Oana Stoican	264

Section Technologies & Virtual Laboratory		
37	Blockchain technology and education Grigore Albeanu	271
38	Integration of Ludic Educational Activities into Classroom Teaching. Gamification Olimpius Istrate	276
39	Using the NI USB-6008 DAQ Device, to Make a Traffic Light Mihai Bogdan	281
40	Traffic Light Using Arduino Uno and LabVIEW Mihai Bogdan	286
41	System for Controlling a Driver's Seat Mihai Bogdan	291
42	PLC - modern programming environment Robert Beloiu	295
43	Control Systems Theory - every bachelor student should have a deep knowledge of everything? Robert Beloiu	303
44	Auto Resetting Multilayer Perceptron in an Adaptive Elearning Architecture Valentin Pupezescu	311
45	Harnessing Edutainment in Higher Education: an Example of an IoT Based Game Luka Petrović, Danijela Stojanović, Aleksandra Labus, Zorica Bogdanović, Marijana Despotović-Zrakić	318
46	From open online courses to virtual learning experience, common perspectives Florin Frumos, Petru-Adrian Istrimschi, Raluca Ungureanu	325
47	Toward a Clear Image of Clear Goals in Gamified Environments Mehran Gholizadeh, Fattaneh Taghiyareh, Saeed Alvandkoohi	336
48	Designing customized products by combining different pieces from a library Avadanei Manuela-Lacramioara, Loghin Emil- Constantin, Ionesi Savin-Dorin, Dulgheriu Ionut	342
49	Determination of geometry influence over the extrusion force using finite element method Stelian Uțuleanu, Aurelian Vlase, Gheorghe Sindilă, Cristian Boboc	350

50	Advocating for Bug Fixing. A Case Study Maria-Camelia Chisăliță-Crețu	358
51	Technical analysis on a modern Virtual Learning Environment Lucian Daniel Berechet, Petru-Adrian Istrimschi, Raluca Ungureanu	365
52	Intelligent Interfaces for Knowledge Representation and Processing Systems Ali Amer Mohameed Saeed	370
53	Involving Students in the Creation of an Intranet Glossary: Outcomes and Challenges Raluca Sinu	376
Section Software Solutions		
54	Design and Implementation of an Interactive E-Democracy Web Application Based On a Platform for Business Process Management Radu Rădescu, Anton Alexandru Nicolae	383
55	Online Management of the Virtual Access System to the Activities of Educational and Cultural Institutions Radu Rădescu, Adrian Voicu	390
56	Role and configuration of digital textbook for musical education from the perspective of initial training for primary school teachers Burlacu Natalia, Balmuș Nicolae, Vacarciuc Mariana	398
57	Software application for the assessment of hydrophilicity of textile materials Daniela Farima, Buliga Valentin, Adrian Salistean	406
58	Software application for the assessment of the fabric behavior in wet environments Daniela Farima, Buliga Valentin, Adrian Salistean	413
59	Software application for the calculation of the moisture permeability index Daniela Farima, Buliga Valentin, Blaga Mirela	418
60	Interactive development of web-based applications containing decision-makers Liviu Șerbănescu	423
61	Designing software applications for production lines that require critical space resources Liviu Șerbănescu	429

62	A DBMS architecture in the field of physics that allows variable data structures over time Liviu Şerbănescu, Mihăilescu Mădălina	434
Section Intel® Education		
63	The Study of The Uniform Circular Motion Using the Accelerometer of a Smartphone Marin Oprea, Cristina Miron	441
64	The Study of The Free And Damped Harmonic OscillationS Using The Accelerometer of a Smartphone Marin Oprea, Cristina Miron	448
65	The free fall in gravitational field treated analytically and numerically with Excel spreadsheets Ionel Grigore, Cristina Miron, Daniela Stoica	455
66	Bringing the scientists' perspective on Science in the classrooms Daly Marciuc, Viorel Solschi, Cristina Miron	463
67	Developing students' creativity by Physics lessons Daly Marciuc, Cristina Miron	470
68	Arduino Yun photovoltaic system for solar energy study in school Luminita Dan, Marinel Dan, Cristina Miron, Stefan Antohe	478
69	Threats that may arise in teachers' training for improving their digital skills Carmen-Gabriela Bostan, Tudor-Codrin Bostan	486
70	Opportunities in the teachers' training for the enhancement of their digital skills Carmen-Gabriela Bostan, Tudor-Codrin Bostan	491
71	The advantages of using sensors in Project-Based Learning of sciences Mariana Mirela Stanescu	498
72	The development of the linguistic levels of preschoolers through the didactic game Flavia Mălureanu, Luiza Enachi-Vasluianu	504
73	Nonverbal and paraverbal aspects in teacher's communication perceived as hostile by students Luiza Enachi-Vasluianu, Flavia Mălureanu	509
74	Digital Resources and Heritage Education in Romanian Rural Schools Angelica Mihăilescu	514

About ICVL 2017

ICVL Project – www.icvl.eu

2010 – TOWARDS A LEARNING AND KNOWLEDGE SOCIETY – 2030
VIRTUAL ENVIRONMENTS FOR EDUCATION AND RESEARCH

C^{3}VIP: "Consistency-Competence-Clarity-Vision-Innovation-Performance"

© Project Coordinator: Ph.D. Marin Vlada, University of Bucharest, Romania
Partners: Ph. D. Prof. Grigore Albeanu, Ph. D. Mircea Dorin Popovici,
Prof. Radu Jugureanu, Ph. D. Adrian Adăscăliței, Ph D. Olimpius Istrate

Institutions: The Romanian Ministry of Research and Innovation, University of Bucharest, SIVECO Romania

October 28, 2017 – SIBIU, EUROPE-ROMANIA

Location: "L. Blaga" University of Sibiu, Faculty of Engineering - Department of Computer Science and Electrical, SIBIU, ROMANIA

Organizers: University of Bucharest, "L. Blaga" University of Sibiu, Faculty of Engineering, SIVECO Romania

Participate

The Conference is structured such that it will:

- provide a vision of European e-Learning and e-Training policies;
- take stock of the situation existing today;
- work towards developing a forward looking approach.

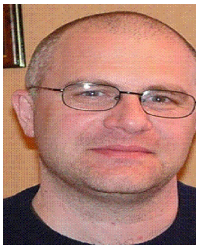
The Conference will consider the perspectives and vision of the i-2010 programme and how this will stimulate the promotion, and development of e-Learning content, products and services and the contribution of these to lifelong learning.

Participation is invited from researches, teachers, trainers, educational authorities, learners, practitioners, employers, trade unions, and private sector actors and IT industry.

Conference Organisation

- General Chair **Dr. Marin Vlada**, Professor of Computer Science, University of Bucharest, Research Center for Computer Science (Romania), European INTUITION Consortium member

- Technical Programme Chair **Dr. Grigore Albeanu**, Professor of Computer Science, Spiru Haret University, Research Center for Mathematics and Informatics (Romania)



- Associate General Chair **Dr. Dorin Mircea Popovici**, Professor of Computer Science, Ovidius University of Constanta (Romania), CERV- European Center for Virtual Reality (France)

- Associate General Chair **Prof. Radu Jugureanu**, AeL eContent Department Manager, SIVECO Romania SA, Bucharest, Romania

- Associate General Chair **Dr. Adrian Adăscăliţei**, Professor at Technical University "Gh. Asachi" of Iasi, Romania

- Associate General Chair **Dr. Olimpius Istrate**, Prof. at University of Bucharest, Faculty of Psychology and Educational Sciences, Romania

Scientific Committee/Technical Programme Committee / Executive reviewers

Dr. Grigore Albeanu	Professor of Computer Science, Spiru Haret University, Research Center for Mathematics and Informatics, Romania
Dr. Adrian Adascalitei	Professor of Electrical Engineering Fundamentals, Technical University "Gh. Asachi", Faculty of Electrical Engineering, Iasi, Romania
Dr. Michael E. Auer	Professor of Electrical Engineering, Carinthia University of Applied Sciences, School of Systems Engineering, Villach, Austria General Chair, ICL – Interactive Computer aided Learning, http://www.icl-conference.org/
Dr. Angelos Amditis	Research Associate Professor (INTUITION Coordinator, http://www.intuition-eunetwork.net/), Institute of Communication and Computer Systems, ICCS- NTUA Microwaves and Optics Lab, ATHENS, GREECE
Dr. Rareş Boian	Professor of Computer Science (Virtual Reality), Mathematics and Computer Science, "Babes-Bolyai" University of Cluj-Napoca, Romania, http://www.ubbcluj.ro
Dr. Grigore Burdea	Professor of Applied Science (Robotics), Rutgers – The State University of New Jersey, Director, Human-Machine Interface Laboratory, CAIP Center, USA
Dr. Pierre Chevaillier	LISYC – Laboratoire d'Informatique des Systèmes Complexes, CERV – Centre Européen de Réalité Virtuelle (European Center for Virtual Reality), France, *European INTUITION Consortium member*
Dr. Mirabelle D' Cruz	Virtual Reality Applications Research Team (VIRART), School of Mechanical, Materials and Manufacturing Engineering (M3),University of Nottingham University, U.K., *European INTUITION Consortium member*
Dr. Steve Cunningham	Noyce Visiting Professor of Computer Science, Grinnell College, Grinnell, Iowa, USA Department of Computer Science
Dr. Ioan Dzitac	Professor of Computer Science, Executive Editor of IJCCC, Agora University,Oradea, Romania
Dr. Victor Felea	Professor of Computer Science, "Al.I. Cuza" University of Iasi, Faculty of Computer Science, Romania
Dr. Horia Georgescu	Professor of Computer Science University of Bucharest, Faculty of Mathematics and Computer Science, Romania

Dr. Radu Gramatovici	Professor of Computer Science University of Bucharest, Faculty of Mathematics and Computer Science, Romania
Dr. Felix Hamza-Lup	Professor of Computer Science at Armstrong Atlantic State University, USA
Dr. Angela Ionita	Romanian Academy, Institute for Artificial Intelligence (RACAI), Deputy Director, Romania
Dr. Olimpius Istrate	University of Bucharest, Faculty of Psychology and Educational Sciences, Bucharest, Romania *www.elearning.ro*
Prof. Radu Jugureanu	AeL eContent Department Manager, SIVECO Romania SA, Bucharest, Romania *www.siveco.ro*
Dr. Bogdan Logofatu	Professor at University of Buchares, Faculty of Psychology and Educational Sciences, Bucharest, Romania *www.unibuc.ro*
Dr. Jean-Pierre Gerval	ISEN Brest (école d'ingénieurs généralistes des hautes technologies), France, *European INTUITION Consortium member*
Dr. Daniel Mellet-d'Huart	AFPA Direction de l'Ingénierie Unité Veille sur la Réalité Virtuelle MONTREUIL, *European INTUITION Consortium member*
Dr. Marius Măruşteri	Professor in the Department of Informatics, University of Medicine and Pharmacy Târgu - Mureş, Romania
Dr. Mihaela Oprea	Professor in the Department of Informatics, University of Ploiesti, Romania
Thomas Osburg	Intel Education Manager, Europe *www.intel.com/education*
Dr. Harshada (Ash) Patel	Virtual Reality Applications Research Team (VIRART)/Human Factors Group Innovative Technology Research Centre, School of Mechanical, Materials and Manufacturing Engineering, University of Nottingham, University Park, Nottingham, U.K., *European INTUITION Consortium member*
Dr. Dana Petcu	Professor at Computer Science Department of Western University of Timisoara, Director at Institute e-Austria Timisoara, Romania
Dr. Dorin Mircea Popovici	Professor of Computer Science, Ovidius University of Constanta, Romania / CERV– European Center for Virtual Reality (France, *European INTUITION Consortium member*)
Dr. Ion Roceanu	Professor of Computer Science, Director of the Advanced Distributed Learning Department, "Carol I" National Defence University, Bucharest, Romania

Dr. Maria Roussou	Virtual Environments and Computer Graphics Lab., Department of Computer Science, University College London, U.K., *European INTUITION Consortium member*
Dr. Ronan Querrec	CERV – Centre Européen de Réalité Virtuelle (European Center for Virtual Reality), Laboratoire d'Informatique des Systèmes Complexes, France
Dr. Luca-Dan Serbanati	Professor of Computer Science, University "Politehnica" of Bucharest, Romania and Professor at the "La Sapienza" University, Italy, *European INTUITION Consortium member*
Dr. Leon Tambulea	Professor of Computer Science, "Babes-Bolyai" University, Cluj-Napoca, Romania
Dr. Jacques Tisseau	CERV – Centre Européen de Réalité Virtuelle (European Center for Virtual Reality), LISYC – Laboratoire d'Informatique des Systèmes Complexes, France, *European INTUITION Consortium member*
Dr. Alexandru Tugui	Professor at "Al. I. Cuza" University of Iasi, FEAA, "Al. I. Cuza" University Iasi, Romania
Dr. Marin Vlada	Professor of Computer Science, University of Bucharest, Romania, *European INTUITION Consortium member*

Research papers – Major Topics

The papers describing advances in the theory and practice of Virtual Environments for Education and Training (VEL&T), Virtual Reality (VR), Virtual Laboratory (VirtLab), Information and Knowledge Processing (I&KP), as well as practical results and original applications. The education category includes both the use of Web Technologies, Computer Graphics (CG) and Virtual Reality Applications, New tools, methods, pedagogy and psychology, Case studies of Web Technologies and Streaming Multimedia Applications in Education, experience in preparation of courseware.

Thematic Areas / Sections

- **MODELS & METHODOLOGIES (M&M)**
- **TECHNOLOGIES & VIRTUAL LABORATORY (TECH)**
- **SOFTWARE SOLUTIONS (SOFT)**
- **"Intel® Education" – Innovation in Education and Research (IntelEdu)**

Objectives

2010 – Towards a Learning and Knowledge Society – 2030

Phase II - **Period 2010-2020**: e-Skills for the 21st Century
Phase III - **Period 2020-2030**: Intelligence Learning –
Knowledge Society and Learning Culture

Relevant topics include but are not restricted to:

- National Policies and Strategies on Virtual Learning
- National Projects on Virtual Universities
- International Projects and International Collaboration on Web-based Education
- Dot-com Educational Institutions and their Impact on Traditional Universities
- Educational Portals for education and training
- Reusable Learning Objects for e-Learning and e-Training
- Testing and Assessment Issues of Web-based Education
- Academia/Industry Collaboration on Web-based Training
- Faculty Development on Web-based Education
- Funding Opportunities for Projects in Web-based Education

Learning and the use of Information and Communication Technologies (I&CT) will be examined from a number of complementary perspectives:

- **Education** – supporting the development of key life skills and competences
- **Research** – emerging technologies and new paradigms for learning
- **Social** – improving social inclusion and addressing special learning needs
- **Enterprise** – for growth, employment and meeting the needs of industry
- **Employment** – lifelong learning and improving the quality of jobs
- **Policy** – the link between e-Learning and European / National policy imperatives
- **Institutional** – the reform of Europe's education and training systems and how I&CT can act as catalyst for change
- **Industry** – the changing nature of the market for learning services and the new forms of partnership that are emerging

General Objectives

The implementation of the Information Society Technologies (IST) according to the European Union Framework-Programme (FP7), Digital Agenda-Europe 2020

- The development of a Romanian Framework supporting the professional and management initiatives of the educational community.

- The organization of the activities concerning the cooperation between the educational system and the economical companies to find out an adequate distribution of the human resources over the job market.
- To promote and implement the modern ideas for both the initial and continuing education, to promote the team based working, to attract and integrate the young graduates in the Research and Development projects, to promote and implement IT&C for initial and adult education activities.

Particular objectives

The development of Research, projects, and software for E-Learning, Software and Educational Management fields

- To promote and develop scientific research for e-Learning, Educational Software, Virtual Reality and Virtual Laboratory.
- To create a framework for a large scale introduction of the e-Learning approaches in teaching activity.
- To assist the teaching staff and IT&C professionals in the usage of the modern technologies for teaching both in the initial and adult education.
- To improve the cooperation among students, teachers, pedagogues, psychologists and IT professionals in specification, design, coding, and testing of the educational software.
- To increase the teachers' role and responsibility to design, develop and use of the traditional technologies and IT&C approaches in a complementary fashion, both for initial and adult education.
- To promote and develop information technologies for the teaching, management and training activities.
- To promote and use Educational Software Packages for the initial and adult education.

Thematic Areas/Sections

Models & Methodologies (M&M):

- Innovative Teaching and Learning Technologies
- Web-based Methods and Tools in Traditional, Online Education and Training
- Collaborative E-Learning, E-Pedagogy,
- Design and Development of Online Courseware
- Information and Knowledge Processing
- Knowledge Representation and Ontologism
- Cognitive Modelling and Intelligent systems
- Algorithms and Programming for Modelling

Technologies & Virtual Laboratory (TECH):

- Innovative Web-based Teaching and Learning Technologies
- Advanced Distributed Learning (ADL) technologies
- Web, Virtual Reality/AR and mixed technologies
- Web-based Education (WBE), Web-based Training (WBT)
- New technologies for e-Learning, e-Training and e-Skills
- Educational Technology, Virtual Laboratory, Web-Lecturing Technology
- Mobile E-Learning, Communication Technology Applications
- Computer Graphics and Computational Geometry
- Intelligent Virtual Environment

Software Solutions (SOFT):

- New software environments for education & training
- Software and management for education
- Virtual Reality Applications in Web-based Education
- Computer Graphics, Web, VR/AR and mixed-based applications for education & training, business, medicine, industry and other sciences
- Multi-agent Technology Applications in WBE and WBT
- Streaming Multimedia Applications in Learning
- Scientific Web-based Laboratories and Virtual Labs
- Software Computing in Virtual Reality and Artificial Intelligence
- Avatars and Intelligent Agents

Innovation in education and research (IntelEDU):

- Digital Curriculum, collaborative rich-media applications, student software, teacher software
- Improved Learning Methods, interactive and collaborative methods to help teachers incorporate technology into their lesson plans and enable students to learn anytime, anywhere
- Professional Development, readily available training to help teachers acquire the necessary ICT skills
- Connectivity and Technology, group projects and improve communication among teachers, students, parents and administrators

Topics of interest include but are not limited to:

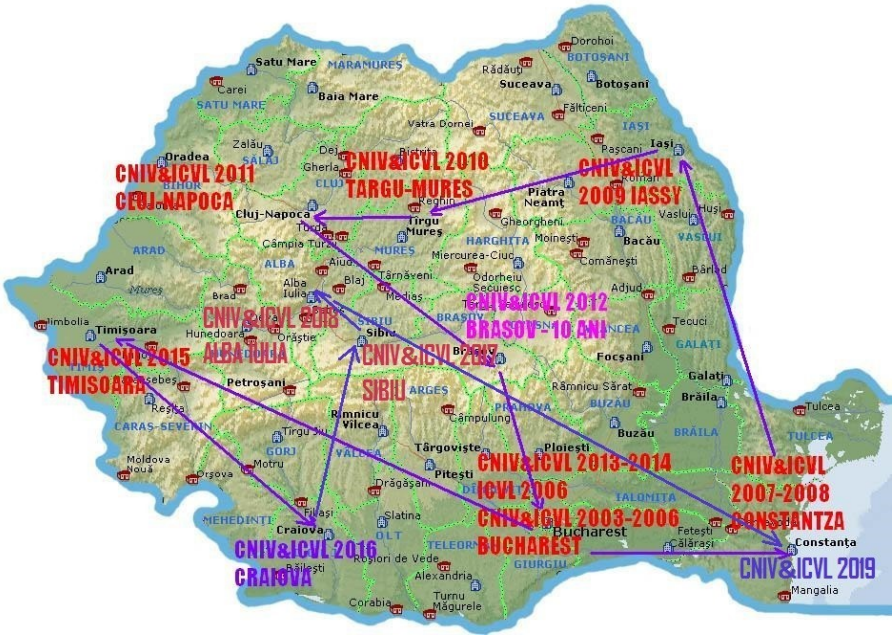
Virtual Environments for Learning (VEL):

- New technologies for e-Learning, e-Training and e-Skills
- New software environments for education & training
- Web & Virtual Reality technologies
- Educational Technology and Web-Lecturing Technology
- Advanced Distributed Learning (ADL) technologies
- Innovative Web-based Teaching and Learning Technologies
- Software and Management for Education
- Intelligent Virtual Environment

Virtual Reality (VR):

- Computer Graphics and Computational Geometry
- Algorithms and Programming for Modeling
- Web & Virtual Reality-based applications
- Virtual Laboratory and Technologies
- Graphics applications for education & training, business, medicine, industry and other sciences
- Scientific Web-based Laboratories and Virtual Labs
- Software Computing in Virtual Reality

Knowledge Processing (KP):

- Information and Knowledge Processing
- Knowledge Representation and Ontologism
- Multi-agent Technology Applications in WBE and WBT
- Streaming Multimedia Applications in Learning
- Mobile E-Learning, Communication Technology Applications
- Cognitive Modelling, Intelligent systems
- New Software Technologies, Avatars and Intelligent Agents
- Software Computing in Artificial Intelligence

Tournament ICVL Project (founded 2006, http://c3.icvl.eu/) and CNIV Project (founded 2003, http://c3.cniv.ro/): Future vs. Vision.