SUBIECTE DISERTATIE 2018

Prof.emerit.Dr Stefan Balint (e-mail stefan.balint@e-uvt.ro)

Specializarea:IASTE.

Nr	Tema	Detalii	Obs
1.	Modelarea si simularea unor procese care apar in cazul prospectiilor magnetice.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
2.	Modelarea si simularea unor procese care apar in senzori electrici.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
3.	Modelarea si simularea unor procese care apar in generatoare de curent electric alternativ.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
4.	Modelarea si simularea unor procese care apar in cuptoare de incalzire cu radiofrecventa.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
5	Modelarea si simularea unor procese care apar intr-o coloana de cromatografie lichida.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
6	Modelarea si simularea unor procese electrice si magnetice care apar in cazul eruptiei unui vulcan .	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
7	Modelarea si simularea unor procese care apar intr-o celula de combustie.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
8	Modelarea si simularea unor procese care apar in tratarea electrochimica a unei tumori.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a	

		acestora,simularea numerica a proceselor,discutii .	
9	Modelarea si simularea unor procese care apar in prospectiuni submarine cu microunde electromagnetice.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	
10	Modelarea si simularea unor procese care apar intr-un ghid de unde electromagnetice ultrascurte.	Lucrarea va contine:descrierea nematematica a proceselor,ecuatiile matematice,rezolvarea numerica a acestora,simularea numerica a proceselor,discutii .	

Prof. Dr. Viorel Negru (vnegru@info.uvt.ro)

Nr crt	***Titlu***	***Descriere***	***Spec.***
1	**Tehnici de modelare a oponentului aplicate jocurilor in timp real** (Gabriel Iuhasz)	Se cere compararea a 2 sau mai multe metode de modelarea a oponentilor in cadrul unui joc in timp real. Prin aplicarea acestor metode se doreste in primul rand imbunatatirea experientei de joc cat si potrivirea dinamica a gradului de dificultate in timp real a unui joc. Cunostinte minimale pentru a realiza teza sunt: - programarea in limbaje orientate obiect (de preferinta C++ sau JAVA) - cunostinte asupra tehnicilor de IA; Machine Learning (ML) - cunostinte despre jocuri in timp real (orice timp de joc: FPS, RTS etc.) Biblio Ian Millington, John Funge - _Arti_cial Intelligence for Games, Second Edition", Morgan Kaufmann, ISBN:9780123747310 Alex J. Champandard - _AI Game Development", New Riders, ISBN:9781592730049	
2	**Cooperative exploration with multiple robots using low bandwidth communication and multi-agent planning** (Gabriel Iuhasz)	We consider the problem of exploring an unknown environment with a team of mobile robots. In this context, we assume that the robots have only a low bandwidth communication link (ex: ZigBee or other equivalent). The key problem to be solved in this context is to decide which information should be transmitted over the network to enable the other team mates to choose appropriate target points in order to maximise the speed and coverage. - The robot team must be able to identify interesting features and cooperate in order to map them efficiently. - There must be a minimum of 2 robots. - The type of robot or the programming language depends on the type of robot chosen. Bibliografie:	

		Russell, S. J. & Norvig, P. Artificial Intelligence: A Modern Approach Pearson Education Roland Siegwart and Illah R. Nourbakhsh. 2011. Introduction to Autonomous Mobile Robots (Intelligent Robotics and Autonomous Agents series) . Bradford Co., Scituate, MA, USA. David Cook. 2010. Intermediate Robot Building (2nd ed.). Apress, Berkely, CA, USA.	
3	Sisteme Multi-Agent in controlul platformelor mobile (Roboti) (Gabriel Iuhasz)	Crearea unui middleware bazat pe sisteme multiagent pentru controlul unui robot - controlul fiecarei platforma mobila sa fie asigurata de un sistem multi agent (ex: Servo Agent, Sensor Agent, Planning Agent etc.) - crearea de coallitii pentru controlul unei platforme mobile si resolvarea unor problem (ex: navigare/explorare)	
4	**Sistem multi-agent pentru simularea unui mediu ambiental intelligent** (Drd. Todor Ivascu)	Mediile ambientale inteligente pot fi de natura diferita ("case inteligente", sisteme asistive, "smart city", etc) si pot colecta date de natura diferita (date de la diferite tipuri de senzori, date provenite din retele de socializare -Facebook, Google+). Se cere proiectarea si dezvoltarea unui sistem multi-agent generic care sa poata simula date privind functionarea unui asemenea mediu ambiental. O ontologie va descrie mediul ambiental si principiile de simularea. Sistemul construit va "incarca" aceasta ontologie si apoi va construi agentii necesari. Agentii vor produce datele care vor "simula" mediul ambiental respectiv. Tehnologii utilizate: JADE, Facebook API, Protege.	
5	**Sentiment Analysis in Customer Relationship Management (CRM) Systems** (Drd. Doru Rotovei)	Here we will explore how Natural Language Processing techniques (NLP) can be used to enhance the knowledge about a potential client using SentiWord. The NLP techniques will be contrasted with supervised learning techniques to extract the polarity of the sentiments in written reviews or notes for CRM products. The work will discover under which conditions one technique is better than the other. Note that the exploration will need prototyping in Python. Yu, J., Zha, Z.J., Wang, M. and Chua, T.S., 2011, June. Aspect ranking: identifying important product aspects from online consumer reviews. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies-Volume 1 (pp. 1496-1505). Association for Computational Linguistics. Coussement, Kristof, and Dirk Van den Poel. "Improving customer attrition prediction by integrating emotions from client/company interaction emails and evaluating multiple classifiers." Expert Systems with Applications 36, no. 3 (2009): 6127-6134.	
6	**Tehnici hibride in securitatea sistemelor complexe** (Drd. Mario Reja)		

7	Text Mining for Romanian Language (Drd. Adriana Dinis)	The Romanian Language faces a lack of text mining tools for its better understanding and processing. Our aim is to fill this gap. The purpose of the project: gather a large amount of Romanian text from different fields, classify it correctly and store it in a large database. For this we will use various classification algorithms (supervised and unsupervised). New ideas are also welcome. Tools: Python, R, Hadoop/Spark	

Prof. Dr. Dana Petcu (Dana.Petcu@e-uvt.ro)

Specializarea: Master Informatica (IACD, AIDC, IS, IASTE)

Nr	Tema	Detalii	Obs
1	Procesarea paralela a datelor satelitare/ Parallel processing of satellite data	Cunostinte: C, MPI, OpenMP, procesarea imaginilor Date: ESA si NASA, open access	
2	Calcul paralel in rezolvarea ecuatiilor diferentiale ordinare/ Parallel computing for ordinary diffential equations	Cunostinte: C, MPI, OpenMP, analiza numerica Date: modele matematice ale unor probleme cunoscute	
3	Microservicii pentru Internetul lucrurilor/Microservices for Internet of Things	Cunostinte: Java, Cloud computing Date: de la senzori	
4	Aspecte ale programarii aplicatiilor in cloud, fog and dew computing/Dew, fog and cloud computing: application programming aspects	Cunostinte solicitate: Java, Cloud computing	
5	Aspecte ale programarii aplicatiilor pentru Big Data/Big Data pplication programming aspects	Cunostinte solicitate: Java, Cloud computing	

Conf. Dr. Teodor-Florin Fortiș (florin.fortis@e-uvt.ro)

Nr	Tema	Detalii	Obs
1	Citation Style Language	Dezvoltarea unor mecanisme pentru identificarea, depozitarea si regasirea informatiilor bibliografice folosind CSL (Citation Style Language) http://citationstyles.org/developers/, https://github.com/citation-style-language/styles	

2	ShareLatex	Crearea de mecanisme de integrare ShareLatex in GoogleDocs (e-uvt) si HUBZero https://github.com/sharelatex	
3	Ingesting VIVO	Crearea de mecanisme de colectare si import automat de informatii pentru VIVO	
4	Ingesting dSpace	Crearea de mecanisme de colectare si import automat de informatii pentru dSpace	
5	dSpace workflows by camunda	Crearea de fluxuri de gestiune a informatiilor dSpace adaptate la cerintele Universitatii, folosind camunda.	
6	dSpace REST	Dezvoltarea unei interfete REST pentru dSpace folosind Play! Interfata va fi orientata spre 'faceted search' (vezi dSpace discovery).	
7	dSpace-CRIS	Adaptarea mecanismelor și interfețelor dSpace-CRIS pentru cerințele Facultății/Departamentului.	

Conf. Dr. Mircea MARIN (mircea.marin@e-uvt.ro)

Nr	Tema	Detalii	Obs
1	Algoritmi de potrivire inexacta si aliniere in analiza sirurilor de caractere.	**Problema:** Un sir de caractere poate reprezenta un document cu unele cuvinte scrise gresit, o secventa ADN cu unele mutatii de gene, etc. Adesea, se pune problema gasirii subsecventelor unui sir care sunt similare (potrivire inexacta) cu un sir dat. **Scop lucrare:** Studiul unor algoritmi de potrivire inexacta si aliniere, implementarea si testarea acestora pentru o problema concreta.	
2	Interogarea eficienta a bazelor de date cu ajutorul unor structuri de date arborescente.	**Problema:** Se doreste o reprezentare adecvata pentru interogarea rapida a unor baze de date multidimensionale, de ex. locatiile geografice ale unor localitati. Structuri arborescente precum arborii kd sau arborii ISAM pot influenta eficienta interogarii bazei de date.	

		Scop lucrare: Studiul structurilor de date arborescente propuse pentru rezolvarea acestei probleme, implementarea unora dintre ei, si testarea lor pe o problema concreta.	
3	Strategii de cautare unica bazate pe expresii regulate.	**Problema:** cautarea bazata pe expresii regulate este o caracteristica de baza a limbajelor de procesat documente, precum Perl si XDuce. Pentru a defini in mod unic rezultatele cautarii, au fost propuse mai multe strategii. **Scop lucrare:** Un studiu comparativ al strategiilor de cautare, implementarea si testarea lor pe niste probleme concrete.	
4	Applications of alpha-beta-pruning in adversarial game theory	Tree pruning is an adversarial search algorithm used commonly for machine playing of two-player games (Tic-tac-toe, Chess, Go, etc.). **Requirements:** the thesis should contain - The description of the tree pruning algorithm and its uses in the implementation of two-player adversarial games - The implementation of an application; tests and experimental results	
5	Tehnici de optimizare a functiilor recursive	**Problema:** Multe functii au definitii recursive usor de inteles, dar care se comporta dezastruos d.p.d.v. al memoriei consumate si al timpului de calcul. Programarea dinamica si tehnicile de rescriere a acestor definitii in versiuni final recursive elimina acest neajuns. **Scop lucrare:** - descrierea tehnicilor de optimizare a functiilor definite recursive - studii de caz; testare si evaluare	
6	Propuneri ale studentilor acceptate ca subiecte de licenta/disertatie		

Conf. Dr. Cristina Mindruta (cristina.mindruta@e-uvt.ro)

Specializarea: Inginerie Software

Nr	Tema	Detalii	Obs
1	Dezvoltare aplicatii pentru Cloud folosind microservicii. Studiu de caz.	Se va studia problematica dezvoltarii aplicatiilor destinate sa ruleze in Cloud si facilitatile oferite de microservicii in acest sens. Se va dezvolta o aplicatie in arhitectura bazata pe microservicii.	IS
2	Suportul oferit de containere pentru arhitecturii cu microservicii. Studiu de caz.	Se vor studia implementari ale tehnologiei containerelor (virtualizare la nivelul sistemului de operare). Se va dezvolta o aplicatie in arhitectura bazata pe microservicii si se va evidentia utilizarea containerelor in relatie cu aceasta.	IS
3	TDD și Unit testing frameworks	Se vor studia principalele cadre pentru testare unitati de cod si se vor defini proceduri TDD (test driven development) pentru fiecare. Se va dezvolta un instrument software ce va integra aplicarea acestor proceduri.	IS
4	Modele UML executabile.	Utilizarea de modele UML executabile este o solutie in dezvoltarea de software condusa de model (MDD). Se vor studia standardele pentru crearea de modele UML executabile (fUML si Alf) si se vor analiza implementari ale acestora.	IS
5	Proiectare de aplicatii pentru rulare in Cloud. Studiu de caz.	Se va studia problematica specifica proiectarii de aplicatii destinate rularii in Cloud. Se va dezvolta o aplicatie care sa ilustreze solutii pentru probleme specifice rularii in Cloud	IS
6	Testare in Cloud. Studiu de caz.	Se va studia, si se va ilustra cu un studiu de caz, suportul oferit de cloud pentru activitati de testare.	IS
7	Platforme Cloud pentru dezvoltare de aplicatii.	Se vor studia ofertele Cloud PaaS reprezentative si se va realiza un studiu comparativ. Se va dezvolta o aplicatie care sa ilustreze rezultate ale acestui studiu.	IS

Conf. Dr. Darian Onchis (darian.onchis@e-uvt.ro)

Specializarea: Master informatica (toate specializarile)

Nr	Tema	Detalii	Obs
1	Metode de corelatie si regresie in bioinformatica.	Se vor folosi metodele de corelatie si metodele de regresie pentru analiza datelor din bioinformatica: http://www.cse.msu.edu/~rongjin/publications/sigir.textming3.pdf	1 stud
2	Dictionary learning and time-frequency analysis for vibrational data.	Metode de tip dictionary learning pentru creearea unui agent inteligent numit AgentMec, pentru detectia defectelor in bare fixe: http://anale-ing.uem.ro/2010/28_C.pdf	
3	Alinierea secventelor multiple in bioinformatica folosind MAFFT.	Scopul acestei lucrari este folosirea si imbunatatirea metodei MAFFT prin introducere de noi elemente algoritmice, pentru alinierea secventelor multiple de aminoacizi sal nucleotide: http://mafft.cbrc.jp/alignment/software/	1 stud
4	Detectia, procesarea si clasificarea datelor de electromiografie (afectiuni neuromusculare).	Dezvoltarea unui software (limbaj de programare la alegere) pentru evaluarea nervilor periferici si a activitarii musculare. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1455479/ http://www.cdt-babes.ro/articole/electromiografie-emg.php	
5	Parallel computing algorithms in time-frequency analysis.	Dezvoltarea de algoritmi paraleli pentru algoritmi de prelucrare in timp-frecventa a datelor: http://ieeexplore.ieee.org/document/6269990/	1 stud

Lect. Dr. Madalina Erascu

Specialization: IA, IR, IE, AIDC, IACD, IASTE

Remarks:

1. All these must be written in English.
2. Usage of Latex is mandatory.

Nr	Tema	Detalii
1.	Detecting fake news	The word *post-truth i*s considered by Oxford Dictionaries Word of the Year 2016. The word is an *adjective relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief*. There is no doubt that fake news influence our daily life in a subtle way all of us being subject to manipulation. This thesis aims to study and develop methods and tools for detecting fake news. More precisely: (1) we will do literature review (2) propose a methodology for detecting fake news (3) implement a platform which allows reporting, respectively detecting fake news/sites. **Requirements**: Java/C#/Python
2.	Cloud Computing Resources Crawler	This thesis aims at the design and implementation of a tool which provides information about Cloud Providers and provided resources. It must provide saving and updating information in a database. It will get from the providers site the available default configurations for offered systems (e. g. CPUs number, available memory and disk space, price) as well as other information like OS installed, number of IP addresses, transfer rate, etc. A motivation of chosen technologies for the implementation will also be provided. **Requirements**: Java/C#/Python
3.	Application Description Module	This must design and implement a tool which provides the end user the capability to describe two types of application constraints: (1) virtual machine (VMs) configuration constraints (e.g. my application needs VMs with 2vCPU and maximum 2GB storage); (2) inter-dependency constraints (e.g. load balancing component should not be placed on the same machine as the gateway component and the SQL server). The constraints of type (1) will be used to lease VMs from certain Cloud Providers (CPs) and the information about configuration of acquired VMs together with constraints of type (2) will stored in order to be consulted other times and to obtain a profile of the application. **Requirements**: Java/C#/Python
4.	Recommendation Engine	A recommendation system seeks to predict user preferences, possibly based on some information that the

		user provided and under certain constraints. We aim at the design and implementation of a recommendation engine dedicated to cloud resources retrieval but also other interesting application modules can be considered. The backend of the engine will be an optimization engine which will use different techniques: pattern matching, exact methods, heuristic methods, etc.
5.	Timekeeping system for Department of Computer Science, West University Timisoara	Every employer of our department has to introduce his working hours (per week) specifying the time spent on different activities (teaching, preparing classes, research, administrative matters). Currently, this is done manually by adding information in an Excel file. This thesis should make this process automated. The user authenticates himself, adds hours in different categories every week. Updating/deleting information should be available also. At the end a pretty-printed file should be generated. **Requirements**: Java/C#/Python
6.	Transforming informal text to formal text. Applications to software specification and general first-order logic structures.	Program documentation (specification) is typically written in plain text. Specifications are useful for program verifiers if they are written in a formal language, most notably first-order logic. This thesis aims to bridge this gap by using natural language preprocessing and natural language understanding techniques. **Requirements**: Java/C#/Python
7.	Using Symbolic Computation to speed-up Satisfiability Checkers	Symbolic Computation and Satisfiability Checking both develop powerful algorithms for determining exact solutions for complex problems but using different algorithmic and technological approaches. Although the two communities solve very similar problems they rarely interact. A recent initiative[1] intents to make the two initiatives collaborate. In this thesis, we try to bridge the gap between the methods used in the two approaches by incorporating the simplification rules proposed in [1], [2], which speed-up the quantifier elimination algorithms by Cylindrical Algebraic Decomposition from QEPCAD-B [3] and Mathematica [4], into state-of-the-art Satisfiability Modulo Theories (SMT) solvers, e.g, [5]. *Bibliography*: [1], [2], [6].
8.	Optimization techniques with priorities in constraints using exact or heuristic methods	Suppose you want to buy, at the lowest cost, virtual machines (VM) with certain CPU, memory, storage, from cloud providers which are geographically distributed. You don't know preciselly the chacteristics of the machines you want to buy but you know you need a machine for installing games and storing your collection of movies and music. Hence it's most likely you give priority to memory and storage VMs. But what preciselly the characteristics

[1] http://www.sc-square.org/

		of these VMs and from which Cloud Provider should you buy them in order that you pay the lowest price? In this thesis we aim to ask these questions by developing optimization techniques in which the constraints might not be fully specified but have a certain priority. The optimization techniques should be designed using (1) SMT solvers (exact results); (2) heuristics (approximate results). On this thesis should work two students, one for the SMT part, the other on the heuristics. *Bibliography*: [7], [8].
9.	Privacy by design	Security plays a central role in the development of distributed software systems. The integration of security engineering into a model-driven software development approach has many advantages, e.g. security requirements can be formulated and integrated into system designs at a high level of abstraction or the model information can be used to detect and to correct design errors or to verify the correctness of the mapping between requirements and their realization in a design. The role of this thesis is to use SecureUML, an UML-based modelling language for model-driven security, to model and prevent errors during the realization of access control policies and enable the technology independent development of secure systems. The benefits of this language will be exemplified on an industrial case study (tax fraudster application) from the EU project H2020-DICE (http://www.dice-h2020.eu/). *Bibliography*: [9], [10], https://www.enisa.europa.eu/publications/privacy-and-data-protection-by-design

Bibliography

[1] M. Erascu and H. Hong, “Synthesis of optimal numerical algorithms using real quantifier elimination (Case study: Square root computation),” in *International Symposium on Symbolic and Algebraic Computation, ISSAC ’14, Kobe, Japan, July 23-25, 2014*, 2014, pp. 162–169.

[2] M. E. and H. Hong, “Real quantifier elimination for the synthesis of optimal numerical algorithms (Case study: Square root computation),” *J. Symb. Comput.*, vol. 75, pp. 110–126, 2016.

[3] C. W. Brown, “QEPCAD B: A Program for Computing with Semi-algebraic Sets Using CADs,” *SIGSAM Bull.*, vol. 37, no. 4, pp. 97–108, Dec. 2003.

[4] S. Wolfram, *The Mathematica book 5. ed.* Wolfram-Media, 2003.

[5] L. De Moura and N. Bjørner, “Z3: An Efficient SMT Solver,” in *Proceedings*

of the Theory and Practice of Software, 14th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'08/ETAPS'08), 2008, pp. 337–340.

[6] E. Ábrahám, "Proceedings of the 2015 {ACM} on International Symposium on Symbolic and Algebraic Computation, {ISSAC} 2015, Bath, United Kingdom, July 06 - 09, 2015," in *Proceedings of the 2015 {ACM} on International Symposium on Symbolic and Algebraic Computation, {ISSAC} 2015, Bath, United Kingdom, July 06 - 09, 2015*, 2015, pp. 1–6.

[7] M. E. and F. M. and D. Zaharie, "A Scalable Hybrid Approach for Applications Placement in the Cloud," in *Grid, Cloud High Performance Computing in Science (ROLCG), 2015 Conference*, 2015, pp. 1–4.

[8] V. Casola, A. De Benedictis, M. Erascu, J. Modic, and M. Rak, "Automatically Enforcing Security SLAs in the Cloud," *IEEE Trans. Serv. Comput.*, no. Special Issue on Security and Dependability of Cloud Systems and Services, 2016.

[9] T. Lodderstedt, D. A. Basin, and J. Doser, "SecureUML: {A} UML-Based Modeling Language for Model-Driven Security," in *{UML} 2002 - The Unified Modeling Language, 5th International Conference, Dresden, Germany, September 30 - October 4, 2002, Proceedings*, 2002, vol. 2460, pp. 426–441.

[10] D. Basin, M. Clavel, M. Egea, M. A. G. De Dios, and C. Dania, "A model-driven methodology for developing secure data-management applications," *IEEE Trans. Softw. Eng.*, vol. 40, no. 4, pp. 324–337, 2014.

Lect. dr. Mafteiu-Scai Liviu Octavian (liviu.mafteiu@e-uvt.ro)

Nr	Tema	Detalii	Obs
1	Preconditionarea si rezolvarea sistemelor de ecuatii folosind tehnici din inteligenta artificiala	Precondiționarea este o transformare a unei probleme matematice, astfel încât aceasta să fie mai potrivită pentru o anumită metodă de rezolvare numerică.	max. 2
1'	Preconditioning and solving equation systems using artificial intelligence techniques	The preconditioning is a transformation of a math problem, so that it be more suitable for a given numerical solving method.	max. 2
2	Paralelizare algoritmi evolutivi (genetici, programare genetica, inteligenta colectiva, brainstorming, etc)	Calcul paralel, care are drept scop rezolvarea mai rapide a unei probleme, se impune a fi folosit in implementarea algoritmilor evolutivi din inteligenta artificiala.	max. 3

2’	Parallelization of evolutionary algorithms (genetics, genetic programming, swarm intelligence, brainstorming, etc.)	Parallel computing, which aims to solve a problem more quickly, needs to be used to implement evolutionary algorithms from artificial intelligence.	max. 3
3	Invatarea asistata bazata pe jocuri	Chiar si lucruri aparent abstracte precum algoritmica sau matematica pot fi invatate prin jocuri de calculator, chiar si de catre adulti.	max. 2
3’	Game-Based assisted learning	Even seemingly abstract things like algorithms or maths can be learned through computer games, even by adults.	max. 2
4	Sisteme inteligente de invatare in aplicatii e-learning/m-learning	Sistemele de invatare inteligente (ITS) sunt sisteme software care urmăresc să furnizeze cursanților instruire imediata și personalizata, la fel -sau mai bine- decât profesorii umani. Scopul principal al ITS este de a permite învățarea într-un mod eficient, utilizând o varietate de tehnologii de calcul.	max. 2
4’	Intelligent Tutoring Systems in e-learning/m-learning applications	Intelligent tutoring systems (ITSs) are software systems that aims to provide immediate and customized instruction to learners, same -or better- than human teachers. The main ITS's goal is to enable learning in a effective manner by using a variety of computing technologies.	max. 2
	Alte subiecte pot fi acceptate la propunerea studentului / Other topics could be accepted at the student's proposal		