

Lecturer Ana Cristina DĂSCĂLESCU, PhD

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Computer Science Department

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EDUCATION

- PhD, Informatics, University of Pitesti, Faculty of Computer Science, 2012
Thesis: *Hybrid Encryption Systems based on One-dimensional Chaotic Maps*
Advisor: Professor PhD Horia Georgescu
- B.A., Informatics, University of Bucharest, Mathematics and Computer Science Department, 2001

RESEARCH EXPERIENCE

Doctoral research: Computer Science Department, University Of Pitesti, 2006-2011

- Study of complex behavior of chaotic discrete dynamical systems and their usage in cryptography
- Development of a new method to improve the cryptographic properties of a chaotic map based on the map compounding
- Development of new chaotic discrete dynamical systems suitable for cryptographic applications using topological conjugation and transcendental equations
- Development of a hybrid encryption scheme which is based on the proposed method

RESEARCH INTEREST

- Study of chaotic behavior of the discrete dynamical systems using Recurrence Quantification Analysis (RQA) with respect to cryptography
- Nonlinear analyses of time series acquired by measuring some natural phenomena

TEACHING EXPERIENCE

- PhD Lecturer, Titu Maiorescu University, Computer Science Department, 2007- present
 - Undergraduate Courses: *Programming in C, Object Oriented Programming in C++, Java Programming, Design of Graphical User Interfaces*
 - Master courses: *Security of Electronic Documents*

- Associated Professor, The University of South – East Europe Lumina, Information Technology Department and Telecommunication Systems and Technologies Department, 2010 – present
 - Undergraduate Courses: *Computer Programming and Programming Languages (C)*, *Object Oriented Programming in C++*, *Advanced Programming Techniques (Java)*
- Lecturer, Dimitrie Cantemir University, Touristic and Commercial Management Department, 2003 – 2007
 - Undergraduate Courses: *Fundamentals of Computer Science*, *Databases Management Systems*, *Informatics Systems*, *Applied Mathematics in Economy*
 - Support ECDL courses (European Computer Driving License)
- Informatics Teacher, Tudor Vianu National College, 2003 – 2005
 - Courses: *Programming in C, C++ and Pascal Languages*, *Operating Systems*, *Web Design Technologies*

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

- Member in the Board of Computer Science Department, Titu Maiorescu University since 2008
- Member in the Teacher Training Department, Titu Maiorescu University since 2008
- Member in Quality Management Commission, Computer Science Department, Titu Maiorescu University since 2011
- Member in the Jury of International Competition InfoMatrix Challenge-seeking and highly talented programmers 2012
- Member in the Jury of National Competition InfoMatrix Challenge-seeking and highly talented programmers 2011 and 2013
- Coordinating Teacher for the Excellence Group in Programming 2003
- Coordinating Teacher for the Performance Group 2003

PUBLICATIONS AND CONFERENCES

- **Dăscălescu, A.C.**, Boriga, R. (in press). A Novel Fast Chaos-Based Method for Generating Random Permutations with High Shift Factor Suitable for Image Scrambling. *Nonlinear Dynamics*, Springer
- Boriga R., **Dăscălescu A.C.** (in press). A New Image Cryptosystem Based on Some Chaotic Maps. *MTA Review*
- **Dăscălescu, A.C.**, Boriga, R., Răcuciu, C. (2012). A New Pseudorandom Bit Generator using Compounded Chaotic Tent Maps. *Proceedings of the 9th International Conference on*

Communications (COMM 2012), June 21-23, 2012, Bucharest, Romania, 339-342, DOI: 10.1109/ICComm.2012.6262542

- **Dăscălescu, A.C.**, Boriga, R. (2012). A New Method to Improve Cryptographic Properties of Chaotic Discrete Dynamical Systems. *Proceedings of the International Workshop on Information Security, Theory and Practice (ISTP-2012) in conjunction with the 7th International Conference for Internet Technology and Secured Transactions (ICITST-2012)*, December 10-12, 2012, London, United Kingdom, 60-65
- **Dăscălescu, A.C.**, Boriga, R. (2012). Hybrid Encryption System Based on Chaotic One-Dimensional Map. *MTA Review*, XXII(1), 31-44
- **Dăscălescu, A.C.** (2011). A New Method to Improve the Safety and the Randomness of a Pseudorandom Bit Generator based on a Chaotic Map. *Megabyte*, 11, 21-26
- **Dăscălescu, A.C.**, Boriga, R. (2011). A Novel Pseudo-random Bit Generator Based on a New Couple of Chaotic Systems. *Annals of the Ovidius University - Economic Sciences Series*, 11, 553-558
- Boriga, R., **Dăscălescu, A.C.** (2011). A Novel Pseudo-random Bit Generator based on Some Transcendental Chaotic Systems. *Annals of the Ovidius University - Economic Sciences Series*, 11, 208-212
- Răcuciu, C., Grecu, D., Boriga, R., **Dăscălescu, A.C.** (2010). Analysis of a Pseudorandom Number Generator with Random Cycles. *Megabyte*, 9, 95-100
- Boriga, R., **Dăscălescu, A.C.** (2010). A Method for Increasing the Randomness of Lagged Fibonacci Generators. *Annals of the Ovidius University - Economic Sciences Series*, 10, 51-55
- **Dăscălescu, A.C.**, Nidelea, M. (2009). The Generation of a Pseudorandom String for the Construction of the Encryption Keys. *Annals of DAAAM for 2009 & Proceedings of the 20th International DAAAM Symposium*, November 25-28, 2009, Vienna, Austria, 1475-1476
- Nidelea, M., **Dăscălescu, A.C.** (2009). Innovative Technology of Maritime and Terrestrial Scanning for Digital Modeling of the Relief. *Annals of DAAAM for 2009 & Proceedings of the 20th International DAAAM Symposium*, November 25-28, 2009, Vienna, Austria, 1473-1474
- **Dăscălescu, A.C.**, Nidelea, M. (2009). A Novel Method for Generating Encryption Keys. *Scientific Bulletin of the Petru Maior University of Tîrgu Mureș*, 6(XXIII), 13-16
- Nidelea, M., **Dăscălescu, A.C.** (2009). The Nature of Geospatial Image Processing. *Scientific Bulletin of the Petru Maior University of Tîrgu Mureș*, 6 (XXIII), 7-12
- Nidelea, M., Jula, N., Izet-Unsalan, K.O., Răcuciu, C., **Dăscălescu, A.C.** (2009). Techniques of Aquisition, Processing and Validation of Satellite Images. *Proceedings of the 4th International Conference on Recent Advances in Space Technologies (RAST'09)*, June 11-13, 2009, Istanbul, Turkey, 429-432, DOI: 10.1109/RAST.2009.5158238

RESEARCH PROJECT AND GRANTS

- *Mathematical methods and models for calculating the irreducible polynomials of degree higher than 256* - Project 75/2008 from Research and Development Sectoral Program for Military Technical and Technologies of the Ministry of Defense, Romania
- *Challenges in Cyber Security – from Paradigm to Implementation*, National Research, Development and Innovation Plan 2007-2013 (PN II), “Ideas” Program, Project Cod: PN-II-ID-SSA-2012-2-017, 2012
- *Centre for Information, Advice and Mentoring to Promote Entrepreneurial Culture*, Sectoral Operational Program Human Resources Development 2007-2013, Project Cod: POSDRU/92/3.1/S/57836, 2010-2012
- *Internships in Bucharest*, Sectoral Operational Program Human Resources Development 2007-2013, Project Cod: POSDRU/109/2.1/G/81566, 2012-2013