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Директор, Истраживачки центар за рачунарске науке и информативне технологије, Македонска академија наука и уметности, Скопје, Северна Македонија

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Научна звања

- 2007 – present: Full Professor, Faculty of Computer Science and Engineering, University “Sv. Kiril i Metodij”, Skopje, Macedonia
- 2014 – present: Director, Research Centre for Computer Science and Information Technologies, Macedonian Academy of Sciences and Arts, Skopje, Macedonia
- 2007 – 2014: Research Professor, Research Centre for Energy, Informatics and Materials, Macedonian Academy of Sciences and Arts, Skopje, Macedonia
- 2009 – 2016: Research Scientist (at full professor rank), BioCircuits Institute, University of California San Diego, CA, USA
- 2000 – 2009: Research Scientist (at full professor rank), Institute for Nonlinear Science, University of California San Diego, CA, USA
- 1995 – 2000: Associate Professor, Faculty of Electrical Engineering, University “Sv. Kiril i Metodij”, Skopje, Macedonia
- 1992 – 1993: Visiting Scholar, University of California Berkeley, CA, USA
- 1990 – 1995: Assistant Professor, Faculty of Electrical Engineering, University “Sv. Kiril i Metodij”, Skopje, Macedonia
- 1986 – 1990: Teaching and Research Assistant, Faculty of Electrical Engineering, University “Sv. Kiril i Metodij”, Skopje, Macedonia

Признања, професионалне активности (делимична листа)

- Member of Macedonian Academy of Sciences and Arts,
Foreign member 2003 – 2007
Full member 2007 – present
- Fellow of IEEE, 2006
- Member of European Academy of Sciences and Arts, 2012
- Scientific Secretary of the Macedonian Academy of Sciences and Arts, 2008 – 2011
- Vice President of the Macedonian Academy of Sciences and Arts, 2012 – 2015
- Editorial Board:
IEEE Transactions on Circuits and Systems, 2002 – 2004; 2006 – 2008
Journal of the Franklin Institute, 2007 – 2010
IEEE Circuits and Systems Magazine, 2016 – present
- Guest Editor:
IEEE Transactions on Circuits and Systems, 2001, Special Issue on Applications of Chaos in Modern Communication Systems
IEICE Transactions on Fundamentals and Electronics, Communications and Computer Science, 2004, 2005, 2006, 2007, 2008

Chaos: An Interdisciplinary Journal of Nonlinear Science, Focus issue on When Machine Learning Meets Complex Networks, 2019

- Referee for over 30 journals including Nature, Science, Physical Review Letters, and over 10 different IEEE Transactions.
- Referee and panellist for various agencies including Macedonian Ministry of Education and Science, Hong Kong Research Council, VINNOVA (Swedish Governmental Agency for Innovation Systems), NSF (National Science Foundation, USA), ONR (Office of Naval Research, USA), and EC (FP7 programme, Horizon 2020).

Публикације, патенти, цитираност

- 162 рада у водећим међународним часописима (додатак)
- Радови су публиковани у 46 различитих часописа (додатак)
- 6 књиге (додатак)
- 6 одобрених патената у САД и/или Европи (додатак)
- Преко 20 поглавља књига
- Преко 150 научних радова саопштени на међународним скуповима
- Према Google scholar: преко 15000 цитата; h-индекс 52
- Према индексу научне цитатности (Science Citation Index): преко 6000 цитата; h-индекс: 32

Тренутне и/или прошле активности административне и научне политике (делимична листа)

- Члан Националне агенције за акредитацију и евалуацију
- Члан Националног научног савета
- Члан Националног савета за европске интеграције
- Члан Универзитетског савета

Прошле и/или садашње агенције за финансирање (делимична листа)

- Македонска влада
- Америчка влада: NSF, AFOSR (Канцеларија за научно истраживање ваздухопловства), DoE (Министарство енергетике) и ONR (Канцеларија за поморска истраживања)
- Индустрија: STMicroelectronics
- NATO
- UNESCO
- UNDP
- European Commission (ТЕМПУС, FP6, FP7, Horizon 2020)
- Разне агенције из Шпаније, Италије, Немачке (DAAD, DFG), Хонг Конга и Мађарске

Остварени резултати у развоју одговарајуће образовне-научне области

- Наставне области: машинско учење, комплексне мреже, оперативно истраживање, рачунарска биологија
- Студенти: 12 докторских студената, преко 40 мастер студената

Књиге (едитор међународних књига)

1. V. In, L. Kocarev et al (Editors), Proceeding of 7th Experimental Chaos Conference, *American Institute of Physics*, 2004
2. L. Kocarev and G. Vattay (Editors), Complex Dynamics in Communication Networks, Series: Understanding Complex Systems, *Springer*, 2005
3. L. Kocarev, Z. Galias, and S. Lian (Editors), Intelligent Computing Based on Chaos, Series: Studies in Computational Intelligence, *Springer*, 2009
4. L. Kocarev and S. Lian (Editors), Chaos-based Cryptography: Theory, Algorithms and Applications, Series: Studies in Computational Intelligence, *Springer*, 2011
5. L. Kocarev (Editor) Proceedings of ICT Innovations 2011, Series: Advances in Intelligent and Soft Computing, *Springer*, 2012
6. L. Kocarev (Editor) Consensus and Synchronization in Complex Networks, Series: Understanding Complex Systems, *Springer*, 2013

Патенти

Патенти: доступни на <https://patents.google.com/?inventor=kocarev&oq=kocarev>
<https://www.uspto.gov/patents-application-process/search-patents>

1. Inventors: L. Kocarev, P. Amato, G. Rizzotto, Method of generating a chaos-based pseudo-random sequence and a hardware generator of chaos-based pseudo random bit sequences, US7779060B2, 2026-05-22 Adjusted expiration
2. Inventors: L. Kocarev, Z. Tasev, P. Amato, G. Rizzotto, Encryption process employing chaotic maps and digital signature process, EP1467512B1, 2023-04-07 Anticipated expiration
3. Inventors: L. Kocarev, S. Markovski, D. Gligoroski, Cryptographic primitives, error coding, and pseudo-random number improvement methods using quasigroups, EP1800432B1, 2025-10-13 Anticipated expiration
4. Inventors: L. Kocarev, G. Jakimoski, G. Rizzotto, P. Amato, Chaos-based data protection using time-discrete dynamical systems, US7106864B2, 2025-01-26 Adjusted expiration
5. Inventors: L. Kocarev, V. Zdraveski, M. Todorovski, Method and system for dynamic intelligent load balancing, US10218179B2, 2035-08-24 Adjusted expiration
6. Inventors: L. Kocarev, P. Amato, G. Rizzotto, Encryption process employing modified chaotic maps and relative digital signature process, EP1467514B1, 2024-03-19 Anticipated expiration
7. Inventors: L. Kocarev, V. Zdraveski, M. Todorovski, A.j Gajduk, L. Basnarkov, Battery control methods and circuits, and energy storage to grid connection systems, US20180138710A1, 2019-05-19 Application status is Pending

Радови у водећим међународним часописима

1. V. Urumov and L. Kocarev, The Phase Diagram of a Piecewise-Linear Oscillator, *ZAMM, Z. Angew. Math. Mech.*, Vol. 66, pp. 396 – 398, 1986
2. L. Kocarev, The Basin Boundaries of One-Dimensional Maps, *Physics Letters A*, Vol. 121, pp. 274 – 278, 1986
3. L. Kocarev, Quasifractal Metamorphosis of 1-D Maps, *Physics Letters A*, Vol. 125, pp. 389 – 342, 1987
4. L. Kocarev, On a Class of Symmetrical Chaotic Attractors, *Physics Letters A*, Vol. 130, pp. 7 – 10, 1988
5. V. Urumov and L. Kocarev, New Metric Elements of the Universal Fine Structure due to Multifurcation, *Physics Letters A*, Vol. 144, pp. 220 – 223, 1990
6. L. O. Chua, L. Kocarev, K. Eckart, and M. Itoh, Experimental synchronization in Chua's circuit, *International Journal of Bifurcation and Chaos*, Vol. 2, pp. 705 – 708, 1992
7. L. Kocarev, K. S. Halle, K. Eckert, L. O. Chua, and U. Parlitz, Experimental demonstration of secure communication via chaotic synchronization, *International Journal of Bifurcation and Chaos*, Vol. 2, pp. 709 – 713, 1992
8. U. Parlitz, L. O. Chua, L. Kocarev, K. S. Halle, and A. Shang, Transmission of digital signals by chaotic synchronization, *International Journal of Bifurcation and Chaos*, Vol. 2, pp. 973 – 977, 1992
9. L. Kocarev and L. O. Chua, On chaos in digital filters: case $b = -1$, *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, Vol. 40, pp. 404 – 407, 1993
10. L. Kocarev, L. Karadzinov and L. O. Chua, N-dimensional canonical Chua's circuit, *Journal of Circuits, Systems and Computers*, Vol. 3, pp. 239 – 258, 1993
11. L. O. Chua, M. Itoh, L. Kocarev and K. Eckart, Chaos synchronization in Chua's circuit, *Journal of Circuits, Systems and Computers*, Vol. 3, pp. 93 – 108, 1993
12. V. Belykh, N. N. Verichev, L. Kocarev and L. O. Chua, On chaotic synchronization in a linear array of Chua's circuits, *Journal of Circuits, Systems and Computers*, Vol. 3, pp. 579 – 589, 1993
13. T. Kapitaniak, L. Kocarev and L. O. Chua, Controlling chaos without feedback and control signals, *International Journal of Bifurcation and Chaos*, Vol. 3, pp. 459 – 568, 1993
14. L. Kocarev, A. Shang and L. O. Chua, Transitions in dynamical regimes by driving: a unified method of control and synchronization of chaos, *International Journal of Bifurcation and Chaos*, Vol. 3, pp. 479 – 483, 1993
15. L. Kocarev, K. S. Halle, K. Eckart and L. O. Chua, Experimental observation of anti-monotonicity in Chua's circuit, *International Journal of Bifurcation and Chaos*, Vol. 3, pp. 1051 – 1055, 1993
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18. L. Kocarev, Z. Tasev, and D. Dimovski, Topological Description of Chaotic Attractors with Spiral Structure, *Physics Letters A*, Vol. 190, pp. 399 – 402, 1994
19. L. Kocarev, Chaotic Behavior in Digital Filters, *Journal of the Franklin Institute*, Vol. 331B, pp. 937 – 955, 1994

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21. L. Kocarev and U. Parlitz, General Approach for Chaotic Synchronization with Application to Communication, *Physical Review Letters*, Vol. 74, pp. 5028 – 5031, 1995
22. L. Kocarev and T. Stojanovski, On Chaotic Synchronization and Secure Communication, *IEICE Transactions on Fundamentals and Electronics, Communications and Computer Science*, Vol. J78-A, pp. 1142 – 1147, 1995
23. L. Kocarev and P. Janjic, On Turing Instability in a System of Diffusely Coupled Oscillators, *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, Vol. 42, pp. 779 – 784, 1995
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28. L. Kocarev and T. Stojanovski, Linear Conjugacy of Vector Fields in Lur'e Form, *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, Vol. 43, pp. 782 – 785, 1996
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33. L. Kocarev and U. Parlitz, “Synchronizing spatiotemporal chaos in coupled nonlinear oscillators”, *Physical Review Letters*, Vol. 77, pp. 2206 – 2209, 1996
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43. U. Parlitz, L. Kocarev, T. Stojanovski, and L. Junge, Chaos Synchronization Using Sporadic Driving, *Physica D*, Vol. 109, pp. 139 – 152, 1997
44. L. Kocarev, Z. Tasev, T. Stojanovski and U. Parlitz, Synchronizing spatiotemporal chaos, *CHAOS*, Vol. 7, pp. 635 – 643, 1997
45. U. Parlitz and L. Kocarev, Using surrogate data analysis for unmasking chaotic communication systems, *International Journal of Bifurcation and Chaos*, Vol. 7, pp. 407 – 413, 1997
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47. L. Kocarev, U. Parlitz, and B. Hu, Lie derivatives and dynamical systems, *Chaos, Solitons and Fractals*, Vol. 9, pp. 1445 – 1455, 1998
48. L. Kocarev, P. Janjic, U. Parlitz, and T. Stojanovski, Controlling spatiotemporal chaos in coupled oscillators by sporadic driving, *Chaos, Solitons, and Fractals*, Vol. 9, pp. 283 – 293, 1998
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