



## MIROSLAV ĆIRIĆ

PROFESSOR OF MATHEMATICS AND COMPUTER SCIENCE

UNIVERSITY OF NIŠ

FACULTY OF SCIENCES AND MATHEMATICS

DEPARTMENTS OF MATHEMATICS AND COMPUTER SCIENCE

NIŠ, SERBIA

April 24, 2019

# CURRICULUM VITAE

## 1. BASIC INFORMATION

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### 1.1. PERSONAL AND CONTACT INFORMATION

**Date and place of birth:**

July 17, 1964, Bela Palanka, Serbia

**Contact Information:**

University of Niš, Faculty of Sciences and Mathematics,

Department of Computer Science

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**ORCID ID:** 0000-0001-8625-4682

**ResearcherID:** T-9959-2018

**Scopus Author ID:** 6603791377

### 1.2. EDUCATION AND DEGREES

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1991 PhD in Mathematics (University of Belgrade, Faculty of Mathematics, Belgrade, Serbia)

PhD thesis: Decompositions of Semigroups and Identities (in Serbian)

Thesis supervisor: Stojan Bogdanović

1990 Magister's degree in Mathematics (University of Novi Sad, Faculty of Science, Novi Sad, Serbia)

Magister's thesis: Semilattices of Archimedean Semigroups (in Serbian)

Thesis supervisor: Stojan Bogdanović

1988 BSc in Mathematics (University of Niš, Faculty of Philosophy, Niš, Serbia)

### 1.3. PRESENT EMPLOYMENT

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Since 08.05.2000

Full Professor • University of Niš, Faculty of Sciences and Mathematics,  
Departments of Mathematics and Computer Science • Niš, Serbia

### 1.4. PREVIOUS EMPLOYMENTS

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11.05.1995 – 07.05.2000 Associate Professor • University of Niš, Faculty of Philosophy,  
Department of Mathematics • Niš, Serbia

22.04.1992 – 10.05.1995 Assistant Professor • University of Niš, Faculty of Philosophy,  
Department of Mathematics • Niš, Serbia

01.10.1990 – 21.04.1992 Teaching Assistant • University of Niš, Faculty of Philosophy,  
Department of Mathematics • Niš, Serbia

01.10.1988 – 30.09.1990 Junior Teaching Assistant • University of Niš, Faculty of Mechanical  
Engineering, Department of Mathematics • Niš, Serbia

### 1.5. LANGUAGE SKILLS

Serbian (native), English (fluent), French (speaking capability), Russian (reading capability of literature in the field of expertise).

## 2. RESEARCH AND SCIENTIFIC ACTIVITIES

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### 2.1. EXPERIENCE IN RESEARCH

More than thirty years of experience in scientific research in diverse fields of *mathematics* and *computer science*, which span multiple branches of *algebra*, *mathematical logic*, *linear algebra*, *automata and formal languages*, *data analysis* and others.

#### Former research interests:

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- *algebraic theory of semigroups* (decomposition and composition of semigroups, semigroup identities, varieties, regularity conditions, ideal theory, etc.)
- *theory of rings* (extensions of rings, multiplicative semigroups of rings, etc.)
- *universal algebra* (varieties, congruence lattices, subdirect products, direct and inverse limits, unary algebras, etc.)
- *ordered sets and lattices* (ideal theory, direct products, Boolean algebras, etc.)
- *algebraic theory of automata and formal languages* (deterministic automata, varieties of automata, transition semigroups, direct sum decompositions, directable automata, etc.)

#### Current and recent research interests:

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- *fuzzy set theory* (fuzzy relations, fuzzy relation equations and inequalities, etc.)
- *algebraic theory of automata and formal languages* (fuzzy automata and languages, weighted automata, formal power series, nondeterministic automata, etc.)
- *data analysis* (social network analysis, formal concept analysis, etc.)
- *ordered algebraic structures* (residuated functions, inequalities and equations defined by residuated functions, residuated algebraic structures, etc.)
- *generalized inverses* (generalized inverses in semigroups, generalized inverses of complex matrices, generalized inverses of fuzzy matrices, etc.)

### 2.2. PUBLICATIONS

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- 162 publications, including 4 research monographs, 3 text-books, 3 edited books, and 150 peer-reviewed research articles published in scientific journals, conference proceedings, and book chapters
- most of recent articles have been published in the highest ranked international scientific journals: Fuzzy Sets and Systems, Information Sciences, IEEE Transactions on Fuzzy Systems, Complexity, Knowledge-Based Systems, Journal of Computer and System Sciences, Theoretical Computer Science, Linear and Multilinear Algebra, and others
- they have also been cited mostly in the top ranked journals
- Citations: *Google Scholar*: 1911, *Scopus*: 681, *Web of Science*: 617
- H-index: *Google Scholar*: 24, *Scopus*: 15, *Web of Science*: 15

The complete list of publications is given in **Appendix 1**.

### 2.3. MANAGEMENT AND PARTICIPATION IN RESEARCH PROJECTS

#### Management of research projects (research grants received as the main applicant)

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|-----------|--|
| 2011–2019 | <i>Development of methods of computation and information processing: theory and applications</i> – 174013<br>Value: EUR 979.833; 39 researchers from Serbia, Germany (2) and United States (1);<br>Funder: <i>Ministry of Education, Science, and Technological Development, Republic of Serbia</i><br>Holder: <i>University of Niš, Faculty of Sciences and Mathematics</i> |
| 2006–2010 | <i>Algebraic Structures and Information Processing Methods</i> – 144011<br>Value: EUR 720.180; 30 researchers from universities of Niš (19), Novi Sad (9), Belgrade (1) and Kragujevac (1);<br>Funder: <i>Ministry of Science and Technological Development, Republic of Serbia</i><br>Holder: <i>University of Niš, Faculty of Sciences and Mathematics</i>                 |
| 2002–2005 | <i>Algebraic and Combinatorial Methods in Information and Communication Technologies</i> – 101227<br>Value: EUR 304.483; 25 researchers from Universities of Niš (13) and Novi Sad (12);<br>Funder: <i>Ministry of Science and Technological Development, Republic of Serbia</i><br>Holder: <i>University of Niš, Faculty of Sciences and Mathematics</i>                    |
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**Participation in research projects**


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- 2019–2020 *Weighted pushdown automata with different acceptance modes*  
Aufbau internationaler Kooperationen mit Serbien  
Funders: *DFG - German Research Foundation*  
Participating institutions: *University of Leipzig, University of Niš, University of Kragujevac*  
Project manager: *Manfred Droste (Leipzig)*
- 2009–2010 *Weighted Automata over Semirings and Lattices - D/08/02092*  
Bilateral German-Serbian project  
Funders: *Deutscher Akademischer Austauschdienst – DAAD, Ministry of Education, Science, and Technological Development, Republic of Serbia*  
Participating institutions: *University of Novi Sad, University of Niš, University of Leipzig, Technical University of Dresden*  
Project managers: *Andreja Tapavčević (Novi Sad), Heiko Vogler (Dresden)*
- 1996–2000 *Methods and Models in Theoretical, Applied and Industrial Mathematics: Algebra*  
(Head of the research topic *Universal Algebra* and manager of the group of 20 researchers from the Faculty of Philosophy, University of Niš)  
Funder: *Ministry of Science and Technological Development, Republic of Serbia*  
Holder: *Mathematical Institute of the Serbian Academy of Science and Arts, Belgrade*  
Project manager: *Stojan Bogdanović (University of Niš)*
- 1991–1995 *Contemporary Problems of Mathematics: 0401B Algebra and Discrete Mathematics*  
(Head of the research topic *Semigroups and Identities*)  
Funder: *Ministry of Science and Technological Development, Republic of Serbia*  
Holder: *Mathematical Institute of the Serbian Academy of Science and Arts, Belgrade*  
Project manager: *Stojan Bogdanović (University of Niš)*
- 1989–1990 *Mathematics and Applications*  
Funder: *Ministry of Science and Technological Development, Republic of Serbia*  
Holder: *Mathematical Institute of the Serbian Academy of Science and Arts, Belgrade*

**2.4. EXPERT ASSIGNMENTS**
**Evaluation of project applications**


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- 2005, 2010 Evaluation of 3 project applications submitted for funding by the Ministry of Education, Science and Technological Development (MESTD), Republic of Serbia
- 2007, 2008, 2014 Evaluation of 3 project applications submitted for funding under the programs of bilateral scientific cooperation of Serbia with Germany, Slovakia and China
- 2007–2010 Participation in the evaluation of the realization of projects in mathematics funded by MESTD (as a member of the National Experts Board for Mathematics and Mechanics)

**Acting as a reviewer for scientific journals**


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- FUZZY SETS AND SYSTEMS (Elsevier)
- INFORMATION SCIENCES (Elsevier)
- IEEE TRANSACTIONS ON FUZZY SYSTEMS (IEEE Computational Intelligence Society)
- INTERNATIONAL JOURNAL OF APPROXIMATE REASONING (Elsevier)
- THEORETICAL COMPUTER SCIENCE (Elsevier)
- MATHEMATICAL STRUCTURES IN COMPUTER SCIENCE (Cambridge University Press)
- SOFT COMPUTING (Springer)
- COMPUTERS AND MATHEMATICS WITH APPLICATIONS (Elsevier)
- INTERNATIONAL JOURNAL OF COMPUTER MATHEMATICS (Taylor & Francis)
- JOURNAL OF MULTIPLE-VALUED LOGIC AND SOFT COMPUTING (Old City Publishing)
- NEW MATHEMATICS AND NATURAL COMPUTATION (World Scientific)
- SEMIGROUP FORUM (Springer)
- ALGEBRA COLLOQUIUM (World Scientific)
- INDIAN JOURNAL OF PURE AND APPLIED MATHEMATICS (Springer)
- IRANIAN JOURNAL OF FUZZY SYSTEMS (University of Sistan and Baluchestan, Iran)

- PUBLICATIONES MATHEMATICAE DEBRECEN (University of Debrecen, Institute of Mathematics, Hungary)
- PUBLICATIONS DE L'INSTITUT MATHÉMATIQUE (BEOGRAD) (Mathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia)
- FACTA UNIVERSITATIS, SERIES MATHEMATICS AND INFORMATICS (University of Niš, Serbia)
- FILOMAT (University of Niš, Faculty of Sciences and Mathematics, Serbia)
- NOVI SAD JOURNAL OF MATHEMATICS (University of Novi Sad, Faculty of Science, Department of Mathematics and Informatics, Serbia)
- KRAGUJEVAC JOURNAL OF MATHEMATICS (University of Kragujevac, Faculty of Science, Serbia)

## 2.5. SCIENTIFIC CONFERENCES

### Organization of scientific conferences

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- 8th International Conference on Algebraic Informatics – CAI 2019, Niš, Serbia, 2019 •  
Co-chair of the Program Committee
- International Conference on Algebra, Logic and Discrete Mathematics, Niš, Yugoslavia, 1995 •  
Co-chair of the Program Committee

### Membership in program committees of scientific conferences

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- 14th Serbian Mathematical Congress, Kragujevac, Serbia, 2018
- 10th European Symposium on Computational Intelligence and Mathematics – ESCIM 2018, Riga, Latvia, 2018
- 5th Conference on Information Theory and Complex Systems – TINKOS 2017, Belgrade, Serbia, 2017
- 9th European Symposium on Computational Intelligence and Mathematics – ESCIM 2017, Faro, Portugal, 2017
- Joint 17th World Congress of International Fuzzy Systems Association and 9th International Conference on Soft Computing and Intelligent Systems – IFSA-SCIS 2017, Otsu, Japan, 2017
- 4th Conference on Information Theory and Complex Systems – TINKOS 2016, Belgrade, Serbia, 2016
- 5th International Scientific Conference Analysis, Topology, Algebra: Theory and Applications – ATA 2016, Čačak, Serbia, 2016
- 8th European Symposium on Computational Intelligence and Mathematics – ESCIM 2016, Sofia, Bulgaria, 2016
- 16th World Congress of the International Fuzzy Systems Association & 9th Conference of the European Society for Fuzzy Logic and Technology – IFSA-EUSFLAT-2015, Gijón, Asturias, Spain, 2015
- Fuzzy algebraic and relational structures – theory and applications, Special Session of 2012 IEEE International Conference on Fuzzy Systems – FUZZ-IEEE 2012, Brisbane, Australia, 2012
- NSAC 05 – 2nd Novi Sad Algebraic Conference, Novi Sad, Serbia and Montenegro, 2005
- NSAC 03 – 1st Novi Sad Algebraic Conference, Novi Sad, Serbia and Montenegro, 2003
- ICM 2002 Satellite Conference in Algebra and Related Topics, Hong Kong, China, 2002
- VIVE MATH - Workshop on Visualization and Verbalization of Mathematics and Interdisciplinary Aspects, Niš, Yugoslavia, 2001
- Seminar in Algebra and Logic in honor of 65th birthday of Prof. S. Milic, Novi Sad, Yugoslavia, 1999
- 8th Conference Algebra and Logic, Novi Sad, Yugoslavia, 1998

Held 185 talks at 97 conferences held in Serbia (35), Hungary (11), Germany (11), Austria (5), China (4), Macedonia (4), Montenegro (4), Greece (3), Bulgaria (3), Portugal (3), Japan (2), Bosnia and Herzegovina (2), United Kingdom, Czech Republik, Slovakia, Slovenia, Spain, Finland, Ukraine, India and Indonesia.

Among them, 16 were keynote/invited lectures.

The list of all conference talks is given in **Appendix 2**.

## 2.6. MEMBERSHIP IN EDITORIAL BOARDS OF SCIENTIFIC JOURNALS

### Membership in editorial boards of international and national scientific journals

1994–present	FACTA UNIVERSITATIS, SERIES MATHEMATICS AND INFORMATICS • University of Niš • ISSN: 0352-9665 (print), 2406-047X (online) • Editor-in-Chief (2009–2011), Member of the Editorial Board (1994–2008, 2012–present)
2008–present	FILOMAT • University of Niš, Faculty of Sciences and Mathematics • ISSN: 0354-5180 (print), 2406-0933 (online) • Area editor for Algebra and Fuzzy Mathematics
2009–present	SCIENTIFIC PUBLICATIONS OF THE STATE UNIVERSITY OF NOVI PAZAR, Series A: Applied Mathematics, Informatics & Mechanics • State University of Novi Pazar • ISSN: 2217-5539 (print), 2466-3778 (online) • Member of the Editorial Board
2011–2014	PUBLISHING UNIT OF THE UNIVERSITY OF NIŠ and THE SCIENTIFIC JOURNAL FACTA UNIVERSITATIS (15 series) • University of Niš • Editor-in-Chief
2011–present	FUZZY SETS AND SYSTEMS • Elsevier • ISSN: 0165-0114 • Member of the Editorial Board
2013–2014	SCIENTIFIC WORLD JOURNAL • Hindawi • ISSN: 2356-6140 (print), 1537-744X (online) • Member of the Editorial Board for the subject area Algebra
2014–present	KRAGUJEVAC JOURNAL OF MATHEMATICS • University of Kragujevac • ISSN: 1450-9628 (print), 2406-3045 (online) • Member of the Editorial Board
2014–present	ZENTRALBLATT MATH and MATHEMATICS EDUCATION • European Mathematical Society • Member of the Local Editorial Board in Belgrade
2016–present	APPLIED MATHEMATICS AND COMPUTER SCIENCE • University of Niš, Faculty of Sciences and Mathematics • Editor-in-chief
2019–present	PUBLICATIONS DE L'INSTITUT MATHÉMATIQUE • Mathematical Institute of the Serbian Academy of Sciences and Arts • Associate Editor

## 2.7. OTHER SCIENTIFIC ACTIVITIES

### Study visits

1997	University of Szeged • Hungary • Department of Computer Science (1 month)
1998	University of Potsdam • Germany • Department of Mathematics (1 month)
2002	Chinese University of Hong Kong • China • Department of Mathematics (1 month)
2018	University of Leipzig • Germany • Faculty of Mathematics and Computer Science (1 month)

## 3. TEACHING AND SUPERVISION

### 3.1. EXPERIENCE IN TEACHING

#### Bachelor's and master's degree courses (programs in Mathematics and Computer Science)

1992–1993	Computability Theory
1992–1994	Methods of Teaching Mathematics
1992–1994	History of Mathematics
1992–1997	Philosophy of Mathematics
1994–2000	Semigroup Theory
1994–2007	Automata and Formal Languages

1995–1996	Lattice Theory
1995–1996	Boolean Algebras
1996–1997	Graph Theory
1998–2000	Discrete Mathematics
1998–2002	Information Technologies (study program in Mathematics)
1998–2007	Philosophy and History of Mathematics
1998–2014	Mathematical Logic and Set Theory
2000–2002	Algebra 1
2000–2006	Information Technologies (study programs in Biology and Geography)
2002–2007	Cryptography
since 2008	Discrete Structures 1 (Computer Science, BSc)
since 2008	Design and Analysis of Algorithms (Computer Science, BSc)
since 2008	History and Philosophy of Mathematics (Mathematics, BSc)
since 2008	Mathematical Logic (Mathematics, MSc)

**Bachelor's and master's degree courses (study programs in other areas)**

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1995–2011	Information Technologies (for students of the Faculty of Pedagogy, University of Niš)
2007–2011	Educational Technology (for students of the Faculty of Pedagogy, University of Niš)
1998–2008	Information Technologies (for students of Psychology and History at the Faculty of Philosophy, University of Niš)
2005–2007	Discrete Structures (for students of the Faculty of Information Technologies, University Metropolitan, Belgrade, Serbia)

**Magister's degree courses (study program in Mathematics)**

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1994–2007	General Algebra (study module for Algebra and Combinatorial Mathematics)
1994–2007	Universal Algebra (Algebra and Combinatorial Mathematics)
1994–2007	Algebraic Structures (Algebra and Combinatorial Mathematics)
1994–2007	Lattices and Boolean Algebras (Algebra and Combinatorial Mathematics)
1994–2007	Ordered Algebraic Structures (Algebra and Combinatorial Mathematics)
1994–2007	Theory of Rings (Algebra and Combinatorial Mathematics)
1994–2007	Theory of Semigroups (Algebra and Combinatorial Mathematics)
1994–2007	Graph Theory (Algebra and Combinatorial Mathematics)
1994–2007	Mathematical Linguistics (study module for Computer Science)
1994–2007	Computability Theory (Computer Science)
1994–2007	Formal Languages and Automata (study modules for Algebra and Combinatorial Mathematics and Computer Science)

**Doctoral degree courses**

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since 2008	Methodology of Scientific Research (for students of Mathematics and Computer Science)
since 2008	Theory of Semigroups and Semirings (Mathematics, Computer Science)
since 2008	Algebraic Theory of Automata and Formal Languages (Computer Science)
2008–2013	Formal languages, automata and computability (Computer Science, Mathematics)
2008–2013	Natural Computing (Computer Science)
2008–2013	Quantum Informatics and Quantum Computing (Computer Science)
2008–2013	Fuzzy Sets and Systems (Mathematics, Computer Science)
since 2014	Quantum Algebraic Structures (Mathematics)
since 2014	Linear Algebra over Semirings (Mathematics)
since 2016	General Algebra (Doctoral school of Mathematics)
since 2016	Semigroup Theory (Doctoral school of Mathematics)
since 2016	Theory of Semirings (Doctoral school of Mathematics)

**3.2. EXPERIENCE IN SUPERVISION****Supervising diploma and master's theses**

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1. Tatjana Petković, Semilattice decompositions of semigroups (in Serbian), Diploma thesis, University of Niš, Faculty of Philosophy, Department of Mathematics, 1993.
2. Rade Stanojević, Symbolic dynamics (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2003.
3. Marko Miladinović, Public-key cryptography (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2005.
4. Marjan Milanović, Fuzzy logic and fuzzy sets (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2007.
5. Nenad Totić, String matching algorithms (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2007.
6. Ivana Jančić, Fuzzy equivalences and their applications (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2008.
7. Zorana Jančić, Fuzzy automata and languages (in Serbian), Diploma thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Mathematics, 2008.
8. Nemanja Vučković, Algorithms for determinization and minimization of nondeterministic automata (in Serbian), Master's thesis, University of Niš, Faculty of Sciences and Mathematics, Department of Computer Science, 2016.

**Supervising magister's theses**

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1. Tatjana Petković, Semigroup identities and automata (in Serbian), Magister's thesis, University of Niš, Faculty of Philosophy, Department of Mathematics, 1996.
2. Žarko Popović, Subdirect decompositions of algebras (in Serbian), Magister's thesis, University of Niš, Faculty of Philosophy, Department of Mathematics, 1998.
3. Jelena Kovačević, Decompositions of ordered sets, semigroups and automata (in Serbian), Magister's thesis, University of Niš, Faculty of Sciences and Mathematics, 2000.
4. Milena Bogdanović, Directable automata, their generalizations and specializations (in Serbian), Magister's thesis, University of Niš, Faculty of Sciences and Mathematics, 2001.
5. Aleksandar Stamenković, Minimality conditions in semigroups and formal languages (in Serbian), Magister's thesis, University of Niš, Faculty of Sciences and Mathematics, 2004.
6. Nina Petković, Pseudovarieties of algebras, semigroups and automata (in Serbian), Magister's thesis, University of Niš, Faculty of Sciences and Mathematics, 2004 (co-supervisor: Snežana Ilić)
7. Nada Damljanović, Idempotent semirings (in Serbian), Magister's thesis, University of Niš, Faculty of Sciences and Mathematics, 2007.

**Supervising doctoral dissertations**

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1. Tatjana Petković, Varieties of automata and semigroups (in Serbian), Doctoral dissertation, University of Niš, Faculty of Philosophy, 1998. [Mathematics]
  2. Žarko Popović, Congruences and decompositions of semigroups and automata (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2001. [Mathematics]
  3. Jelena Ignjatović, Fuzzy relations, automata and languages (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2007. [Computer Science]
  4. Aleksandar Stamenković, Fuzzy automata and fuzzy regular expressions (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2010. [Computer Science]
  5. Milan Bašić, Certain graph theoretical problems on quantum networks and nondeterministic automata (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2010. [Computer Science] (co-supervisor: Dragan Stevanović)
  6. Nada Damljanović, Multivalued relations over lattices and semirings: theory and applications (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2012. [Mathematics]
  7. Vesna Veličković, Visualization in mathematics using the object-oriented software package for line graphics (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2012. [Computer Science] (Co-supervisor: Eberhard Malkowsky)
  8. Velimir Ilić, Algorithms for computing cross-moments of probabilistic context-free grammars and probabilistic graphical models (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2012. [Computer Science]
  9. Ivan Stanković, Fuzzy relation equations and inequalities and their application in data analysis, (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, 2017. [Computer Science]
  10. Stefan Stanimirović, Improved algorithms for determinization of fuzzy and weighted automata (in Serbian), Doctoral dissertation, University of Niš, Faculty of Sciences and Mathematics, in progress [Computer Science]
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**Awards won by doctoral students**

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- 1998 Conference of PhD Students in Computer Science • Szeged • Hungary  
*Tatjana Petković*: Best Talk Award and the Medail of the John von Neumann Computer Society
- 2000 Conference of PhD Students in Computer Science • Szeged • Hungary  
*Jelena Kovačević*: Second Prize  
*Žarko Popović*: Third Prize

**Organization of scientific seminars**

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- 1996–2002 *Seminar for Algebra*  
Heads: Stojan Bogdanović, Miroslav Ćirić
- 2002–2005 *Seminar for Algebra, Combinatorics and Computer Science*  
Heads: Miroslav Ćirić, Stojan Bogdanović
- since 2006 *Seminar for Algebra and Theoretical Computer Science*  
Head: Miroslav Ćirić

Lecturers at the seminars were members of the local research group, as well as eminent university professors from Niš, Belgrade, Novi Sad and Kragujevac (Serbia), Novosibirsk and St Petersburg (Russia), Kharkov (Ukraine), Tucson, Arizona, and Dover, Delaver (United States), Leipzig, Dresden and Hamburg (Germany), Turku (Finland), Szeged (Hungary), Sofia (Bulgaria) and Skopje (Macedonia).

**3.3. ASSESSMENT OF DOCTORAL DISSERTATIONS****Membership in commissions for assessment and defense of doctoral dissertations**

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1. Milan Božinović, Some relations on semigroups and Abel-Grassmann's groupoids (in Serbian), PhD thesis, University of Niš, Faculty of Philosophy, 1997. [Mathematics] (Supervisor: Petar Protić)
  2. Igor Dolinka, On identities of algebras of regular languages (in Serbian), PhD thesis, University of Novi Sad, Faculty of Science, 2000. [Mathematics] (Supervisor: Siniša Crvenković)
  3. Dragan Stevanović, Some compositions of graphs and integral graphs (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2000. [Mathematics] (Supervisor: Dragoš Cvetković)
  4. Melanija Mitrović, Regular subsets and semilattice decompositions of semigroups (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2000. [Mathematics] (Supervisor: Stojan Bogdanović)
  5. Milan Tasić, Computation of generalized inverses (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2003. [Mathematics] (Supervisor: Predrag Stanimirović)
  6. Predrag Krtolica, Application of inverse Polish notation and interpolation in symbolic computation (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2004. [Mathematics] (Supervisor: Predrag Stanimirović)
  7. Ljiljana Radović, Derivation of Mackay groups from 230 space symmetry groups (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2004. [Mathematics] (Supervisor: Slavik Jablan)
  8. Dušan Milošević, Iterative methods for simultaneous inclusion of polynomial zeros (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2005. [Mathematics] (Supervisor: Miodrag Petković)
  9. Nebojša Stevanović, Groupoids satisfying the Abel-Grassmann's law (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2006. [Mathematics] (Supervisor: Petar Protić)
  10. Marko Petković, Symbolic computation of Hankel determinants and matrix generalized inverses (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2008. [Computer Science] (Supervisor: Predrag Stanimirović)
  11. Petar Đapić, Varieties of groupoids (in Serbian), PhD thesis, University of Novi Sad, Faculty of Science, 2008. [Mathematics] (Supervisor: Petar Marković)
  12. Marko Miladinović, Algorithms for computations on structured matrices and applications (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2011. [Computer Science] (Supervisor: Predrag Stanimirović)
  13. Svetozar Rančić, Visualization of infinitesimal bending of curves and surfaces (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2011. [Computer Science] (Supervisor: Ljubica Velimirović)
  14. Branka Budimirović, Lattice-valued identities and some classes of lattice-valued subalgebras (in Serbian), PhD thesis, University of Novi Sad, Faculty of Science, 2011. [Mathematics] (Supervisor: Andreja Tepavčević)
  15. Vanja Stepanović, The problem of representation of weak congruence lattices (in Serbian), PhD thesis, University of Novi Sad, Faculty of Science, 2012. [Mathematics] (Supervisor: Andreja Tepavčević)



## CURRICULUM VITAE OF MIROSLAV ĆIRIĆ

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16. Selver Pepić, Matrix computations in PHP/MySQL environment (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2012. [Computer Science] (Supervisor: Milan Tasić)
17. Zorana Jančić, Algorithms for Determinization of Weighted and Fuzzy Automata, PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2014. [Computer Science] (Supervisor: Jelena Ignjatović)
18. Ivana Micić, Bisimulations for Fuzzy Automata, PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2014. [Computer Science] (Supervisor: Jelena Ignjatović)
19. Dejan Mančev, Training structured classifiers for different loss functions with the application to Sequence Labeling Problems, PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2015. [Computer Science] (Supervisor: Branimir Todorović)
20. Ivona Brajević, Improvements of some population-based metaheuristics for constrained optimization problems (in Serbian), PhD thesis, University of Niš, Faculty of Sciences and Mathematics, 2015. [Computer Science] (Supervisor: Jelena Ignjatović)
21. Elijah Eghosa Edeghagba,  $\Omega$ -algebraic systems, PhD thesis, University of Novi Sad, Faculty of Science, 2017. [Mathematics] (Supervisor: Branimir Šešelja)
22. Ana Slivkova, Partial closure operators and applications in the theory of ordered sets (in Serbian), PhD thesis, University of Novi Sad, Faculty of Science, 2017. [Mathematics] (Supervisor: Branimir Šešelja)
23. Omalkhear Salem Almabruk Bleblou,  $\Omega$ -Boolean algebras, PhD thesis, University of Novi Sad, Faculty of Science, 2017. [Mathematics] (Supervisor: Andreja Tepavčević)

### 3.4. DEVELOPMENT OF TEACHING MATERIAL

Published 2 textbooks and one book of problems, as well as 4 monographs which were also used for teaching at doctoral studies. A lot of PDF or PowerPoint slides used on lessons.

### 3.5. USE OF INFORMATION AND EDUCATIONAL TECHNOLOGIES

Excellent knowledge of LaTeX and many of its packages, HTML, PDF and PDF manipulating software, Microsoft Word, Excel and PowerPoint, and basic knowledge of programming, image processing and desktop publishing software, Skype, Moodle and other software.

### 3.6. DEVELOPMENT PROJECTS RELATED TO TEACHING

#### ERASMUS + KA2 CBHE projects

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2018–2021 598434-EPP-1-2018-1-RS-EPPKA2-CBHE-JP: Strengthening Teaching Competences in Higher Education in Natural and Mathematical – TeComp (Member of the Central Management Team)

#### TEMPUS projects

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2002–2005 TEMPUS, CD JEP-16160-2001: Innovation of Computer Science Curriculum in Higher Education (Project coordinator for University of Niš, Faculty of Sciences and Mathematics)

2006–2009 TEMPUS, CD JEP-40053-2005: Science Teacher Education Revision and Upgrading – STERU (Project coordinator for University of Niš, Faculty of Sciences and Mathematics)

2007–2008 TEMPUS, SM\_SCM-C024B06-2006 (RS): Network education at Faculties of Science in Serbia – NEFS (Project coordinator for University of Niš, Faculty of Sciences and Mathematics)

2007–2009 TEMPUS, CD JEP-41110-2006: Teacher Education - Innovation of Studies in Mathematics and IT – TEMIT

2010–2013 TEMPUS, 511140-TEMPUS-1-2010-1-RS-TEMPUS-JPCR: Master programme in Applied Statistics – MAS (Project coordinator for University of Niš)

2013–2016 TEMPUS, 544093-TEMPUS-1-20131-RS-TEMPUS-SMGR: Restructuring of Doctoral Studies in Serbia – RODOS

2013–2016 TEMPUS, 544006-TEMPUS-1-20131-RS-TEMPUS-SMGR: Fostering University Support Services and Procedures for Full Participation in the European Higher Education Area – FUSE (Member of the Central Management Team)

#### DAAD projects

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2001–2003 Deutscher Akademischer Austauschdienst – DAAD: Software Reengineering und Cooperative Distributed Software Development (Project coordinator for University of Niš, Faculty of Sciences and Mathematics)

2004–2006 Deutscher Akademischer Austauschdienst – DAAD: Education and Research Cooperation (Project coordinator for University of Niš, Faculty of Sciences and Mathematics)

#### WUS Austria projects

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2002 World University Service Austria- WUS, CEP 106-2002: Multimedia Learning (Project leader)

2006 World University Service Austria- WUS, eLP 001-2006: eDiscrete Structures

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## 4. ADMINISTRATION AND OTHER ACTIVITIES

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### 4.1. EXPERIENCE IN LEADERSHIP/MANAGEMENT

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2004–2009	Dean • Faculty of Sciences and Mathematics, University of Niš (260 employees)
2015–2019	Chairman of the Administrative Council • Faculty of Sciences and Mathematics, University of Niš
2000–2002	Vice-Dean for Scientific Research • Faculty of Sciences and Mathematics, University of Niš
1998–2000	Head of the Department of Mathematics (30 members) • Faculty of Philosophy, University of Niš
1998– 2007	Head of the Computing Center • Faculty of Sciences and Mathematics, University of Niš
2000–2002, 2009–2012, 2015–present	Chairman of the Scientific Council for Natural Sciences and Mathematics • University of Niš
2009–2012	Head of the Department of Mathematics, Physics and Geosciences • Research Center of Serbian Academy of Science and Arts and of University of Niš
2007–2009	Head of the Board for International Relations • University of Niš
2015–present	Head of the Center for International Relations • University of Niš

### 4.2. MEMBERSHIP IN BOARDS/COMMITTEES WITHIN THE UNIVERSITY

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2000–2002, 2004–2012, 2015–present	Member of the University Senate
2002–2004	Member of the University Council
2000–present	Member of the Scientific Council for Natural Sciences and Mathematics • University of Niš
2007–2009, 2019 – present	Member of the Statutory Board • University of Niš
1992–present	Member of the Academic Council • Faculty of Sciences and Mathematics, University of Niš
2009–2019	Member of the Administrative Council • Faculty of Sciences and Mathematics, University of Niš

### 4.3. MEMBERSHIP IN STATE RESEARCH COUNCILS OR THEIR COMMITTEES

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2007–2009	Member of the National Experts Board for Mathematics and Mechanics • Ministry of Science and Technological Development, Republic of Serbia
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### 4.4. MEMBERSHIP IN OTHER STATE ACADEMIC BODIES

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2007–2009	Member of the Conference of Universities of Serbia
2007–2011	Member of the National CEEPUS Committee • Ministry of Education and Sports, Republic of Serbia

### 4.5. MEMBERSHIP IN PROFESSIONAL SOCIETIES

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- European Society for Fuzzy Logic and Technology (EUSFLAT)
  - International Fuzzy Systems Association (IFSA)
  - Serbian Mathematical Sciences Association (SNMD)
  - Serbian Mathematical Society (DMS)
  - Yugoslav Association for Applied and Industrial Mathematics (JUPIM)

## 5. RECOGNITIONS, AWARDS AND FELLOWSHIPS

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### 5.1. STUDENT RECOGNITIONS, AWARDS AND FELLOWSHIPS

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|------------|--|
| 1986, 1987 | <i>Best Student Award</i> • University of Niš • award for the best students of the faculties who completed those years of studies that are not starting or finishing |
| 1987       | <i>University of Niš Fellowship</i> • fellowship given to the best students of the faculties at the final year of study  |
| 1988       | <i>Charter of the University of Niš</i> • award for the best graduated students at the faculties of the University of Niš  |
| 1988       | <i>Best Graduated Student Award</i> • University of Niš, Faculty of Philosophy   |

### 5.2. ACADEMIC RECOGNITIONS, AWARDS AND FELLOWSHIPS

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|------|--|
| 1995 | <i>Best Researcher Award</i> • Mathematical Institute of the Serbian Academy of Science and Arts • award for the second-placed researcher on the list of the most successful researchers in Serbia on research projects in mathematics in the period 1991-1995 |
| 1998 | <i>Fellowship for Young Mathematicians from Developing Countries to attend the ICM'98 in Berlin</i> • International Mathematical Union   |
| 2017 | <i>Silver Sign of the University of Niš</i> • award for the outstanding contribution to the development of the University of Niš   |

# APPENDICES

## APPENDIX 1: LIST OF PUBLICATIONS

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MIROSLAV ĆIRIĆ

April 24, 2019

### A – PEER-REVIEWED SCIENTIFIC ARTICLES

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#### Journal articles

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- [1] S. Stanimirović, A. Stamenković, **M. Ćirić**, Improved algorithms for computing the greatest right and left invariant Boolean matrices and their application, *FILOMAT* (2019), accepted for publication.
- [2] Y. Ke, J. Chen, P. Stanimirović, **M. Ćirić**, Characterizations and representations of outer inverse for matrices over a ring, *LINEAR AND MULTILINEAR ALGEBRA* (2019), <https://doi.org/10.1080/03081087.2019.1590302>.
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- [5] V. Ilić, **M. Ćirić**, M. Stanković, Cross-moments computation for stochastic context-free grammars, *FACTA UNIVERSITATIS (NIŠ), SERIES MATHEMATICS AND INFORMATICS* 33 (1) (2018) 41–61.
- [6] A. Stamenković, **M. Ćirić**, M. Bašić, Ranks of fuzzy matrices. Applications in state reduction of fuzzy automata, *FUZZY SETS AND SYSTEMS* 333 (2018) 124–139.
- [7] J. Ignjatović, **M. Ćirić**, Z. Jančić, Weighted finite automata with output, *SOFT COMPUTING* 22(4) (2018) 1121–1138.
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- [11] Z. Jančić, I. Micić, J. Ignjatović, **M. Ćirić**, Further improvements of determinization methods for fuzzy finite automata, *FUZZY SETS AND SYSTEMS* 301 (2016) 79–102.
- [12] A. Stamenković, **M. Ćirić**, J. Ignjatović, Different models of automata with fuzzy states, *FACTA UNIVERSITATIS (Niš), SERIES MATHEMATICS AND INFORMATICS* 30 (3) (2015), 235–253.
- [13] I. Micić, Z. Jančić, J. Ignjatović, **M. Ćirić**, Determinization of fuzzy automata by means of the degrees of language inclusion, *IEEE TRANSACTIONS ON FUZZY SYSTEMS* 23 (6) (2015) 2144–2153.
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