Curriculum Vitae

1. Biographical Information

Name: Algimantas Juozapavičius
Date of birth: May 3, 1948
Citizenship: Lithuania
Marital Status: Married, three children
Current position: associate professor at the Department of Mathematics and Informatics, vice-dean for information technologies, Vilnius University, Lithuania
Postal Address: 24 Naugarduko Str., LT2006, Vilnius, Lithuania
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2. Education

- 1966 - Antanas Vienuolis High School, Vilnius, Lithuania
- 1971 - Diploma of University Education, Department of Mechanics and Mathematics, Moscow Lomonosov University, SU
- 1980 - Doctor of Science, Moscow Lomonosov University, SU (*in mathematics, specializing in algebra: quadratic and hermitian forms and algorithmic methods*)

3. Professional Experience

- Doctoral student (aspirant) in Mathematics - Moscow Lomonosov University, Moscow, 1971 – 1974
- Junior research fellow, later senior research fellow - Lithuanian Institute for Scientific and Technical Information, Vilnius, 1975 – 1977
- Head of Department - Lithuanian Institute for Scientific and Technical Information, Vilnius, 1977 – 198
- Part-time Assistant Professor, Vilnius University, 1975 – 1981
- Assistant Professor - Faculty of Mathematics, Vilnius University, 1981 – 1982
- Associate Professor - Faculty of Mathematics and Computer Science, Vilnius University, 1982 – present

4. Teaching

4.1. Courses, given at Vilnius University in the past:

- Calculus
- Information and Coding Theory
- Geometry of Orthogonal and Unitary Groups
- Orthogonal Groups and Number Theory
- Computer Programming: Introduction and Intermediate,
- Data Processing Methods
- Methods of Computer Algebra

4.2. Recent courses at Vilnius University:

- Practical Computer Science
- Data Structures and Algorithms
- Information Systems
- Spatial Information Systems
- Interactive Graphics on Internet
- Information Management (Databases and Information Systems, a course for doctoral students)
- Computer Vision

5. Consultantship

- Lithuanian Institute for Scientific-Technical Information, Vilnius (information search and retrieval online, data base design, 1981-1983)
- The industrial research Institution VENTA, Vilnius (design of data bases for operational manufacturing managenent, 1982-1985)
- The industrial research Institution VILMA, Vilnius (algorithms for data and information processing, symbolic manipulation for magnetic heads modeling, 1986-1988)
- The industrial research Institution VIBROTECHNIKA, Kaunas (algorithms and data processing in robotics, 1982-1985)
- The information vendor STN International – Scientific and Technical Information Network (consultation and marketing activities for institutions and companies in Baltic States, 1992-1995)
- Information processing, algorithms of computer vision and image processing, database and information systems design, for companies in Baltic States

6. Conferencies, Exchange Programs, Research Visits etc.

- 1977 - Research trip to the Research Center for Scientific and Technical Information, Praha, Czechoslovakia (15 days, automation of data processing)
- 1980 - University of Duesseldorf, Germany (15 days, design of information systems for scientific and research data)
- 1982 - International conference in Computational Linguistic COLING, Praha, Czechoslovakia (5 days)
- 1985-1986 - research trip to Columbia University on IREX Exchange Program, New York, USA (9 months, quadratic and hermitian forms and related theories)
- 1987 - International conference in Symbolic and Algebraic Computation in Europe EUROCAL-87, Leipzig, DDR (5 days)
- 1987 - Research trip to Greifswald University, DDR (15 days, symbolic and algebraic computation)
- 1989 - International conference "Computers and Mathematics", Boston, USA (5 days)
- 1989 - International workshop "Symbolic Methods in Differential Equations", University of Minnesota, Minneapolis, USA (5 days)
- 1989 - Research visit to the University of Delaware, USA (5 days, symbolic and algebraic computer methods in polynomial algebra)
- 1989 - Research trip to Charles University, Praha, Czechoslovakia (15 days, jooint research program in data processing methods)
- 1990 - Research trip to Greifswald University, DDR (15 days, joint research program in knowledge data bases)
- 1990 - Research visit to Greifswald University, DDR (7 days, methods of symbolic manipulation in curricula for computer science)
- 1993 - European Conference "Empowering Users in 21st Century", Vilnius, Lithuania
- 1993 - Research trip to Rostock University, Germany (4 days, information search and retrieval online)
- 1994 - Research visit to the Kansas University, USA (5 days, algorithmic methods in rings of polynomials)
- 1995 - Research trip to the University of Delaware, USA (5 days, algorithmic methods in quadratic forms)
- 1996 - Research trip to the Munich University of Technology, Germany (6 weeks, data structures and algorithms in knowledge data bases and spatial data)
- 1997 - 1998 - Fulbright (USA) Fellowship, research at the University of Delaware, USA, 5 months, Aug. 20. 97 – Jan.20. 98 (algorithms and data structures for polynomials and quadratic forms, multidimensional data structures)
- 1998 - Research trip to the University of Greifswald, Germany, Institute for Baltistics, 14 days, April, 98, (designing university courses on-line, participation in the International Conference "Balticum'98")
- 1998 - Visiting Lecturer at the Department of Informatics, Karlstad University, Sweden, August-September 98, (lecturing the course "Data Structures and Algorithms")
- 1998 - 1999 - Visiting Professor at the Department of Information and Computer Sciences, Norwegian University of Science and Technology, Trondheim, Norway, 6 months, July, 98 - February, 99 (research in computer graphics and computer vision, lecturing the courses "Computer Graphics I" and "Design of Algorithms")
- 1998 - Research trip to the Reading University, U.K., December, 98, 5 days (computer vision)
- 1999 – 4th International Conference "Mathematical Modelling and Analysis", June 3-4, 1999, Vilnius, Lithuania
- 2000 - Visiting Professor at the Department of Information and Computer Sciences, Norwegian University of Science and Technology, Trondheim, Norway, 6 months, January-June, 2000 (research in computer graphics

and computer vision, lecturing the courses "Computer Graphics II" and "Pattern Recognition", latter for doctoral students)

- 2000 – 4th IEEE International Baltic Workshop, May 1-5, Vilnius, Lithuania
- 2001 – Workshops of research Network "Wireless Information Management", Trakai (Lithuania), June 9-13, and Aalborg (Denmark), December 5-11
- 2002 – EERC2002, Milano (Italy), February 5-9

- Also: Visits, participations and talks in annual All-Union (USSR) algebraic conferencies: Kishinev (1974), Gomel (1975), Tartu (1976), Dushanbe (1977), Minsk (1978), Novosibirsk (1979), Moscow (1981), Uzhgorod(1982), Lvov(1983). Participation and talks in annual conferencies of Lithuanian Mathematical Society (since 1981)

7. Research Field of Interest

Computer Vision and Computer Graphics, Data Structures and Algorithms, Algorithms for Multidimensional Data, Visualization of Algorithms, Internet Technology for Graphics and Algorithms.

8. Professional Societies

- Lithuanian Mathematical Society - since 1975
- Lithuanian Society for Computer Science - since 1992
- Association for Computing Machinery (ACM) - 1989-1994
- SIG for Symbolic and Algebraic Manipulations - 1989-1994
- American Mathematical Society - 1996, 1997, 1999-2000
- IEEE Computer Society – 1997, 1999
- Lithuanian Association of Nonlinear Analysts – since 1997 (Scientific secretary of the Lithuanian Association of Nonlinear Analysts – LANA)

9. Hobby Interests

History of Lithuania in international Context
Home mastering (wood cutting, etc.)
Bible Studies (New Testament)

10. Books, Journal Articles and Abstracts published

1. A. Juozapavičius "Invariant Submodules of Hermitian Module over Rings with Involution" (Abstract), Proceedings of All-Union Symposium on Algebras, Rings and Modules, Kishinev, 1974, 2 p. (in Russian)
2. A. Juozapavičius "Invariant Submodules of Hermitian Module" (Journal Article), Uspekhi matematicheskikh nauk, Moscow, 1975, v. 30, Nr. 6, 3 p. (in Russian)
3. A. Juozapavičius "The Behaviour of Witt Groups of Hermitian Forms over Skew-fields with Involution" (Abstract), Proceedings of All-Union Algebraic Symposium, Gomel, 1975, 2 p. (in Russian)
4. A. Juozapavičius "Unitary Groups over Local Rings" (Abstract), Third All-Union Symposium on Algebras, Rings and Modules, Tartu, 1976, 3 p. (in Russian)
5. A. Juozapavičius "Invariant Submodules of Hermitian Modules over Local Rings" (Journal Article), Lithuanian Mathematical Journal, Vilnius, 1977, v. 17, Nr. 3, 3 p. (in Russian)
6. A. Juozapavičius "Subspaces Invariant under Unitary Groups over Local Rings" (Abstract), Proceedings of All-Union Seminar in Number Theory, Dushanbe, 1977, 2 p. (in Russian)
7. A. Juozapavičius "The Structure of Invariant Modules inder Action of Unitary Groups" (Archive Article), Lithuanian Institute for Scientific-Technical Information, Vilnius, 1977, 52 p. (in Russian)
8. A. Juozapavičius, J. Zujus "State-of-the-Art and Perspectives for Development Scientific-Technical Information Services" (Journal Article), NTI, Moscow, VINITI, 1977, Nr. 6, 6 p. (in Russian)
9. A. Juozapavičius, R. Našliūnas "The Design and Experimental Testing of Algorithms for Documental Information Retrieval Systems" (Book), Vilnius, Lithuanian Institute for Scientific-Technical Information, 1977, 68 p. (in Lithuanian)
10. A. Juozapavičius, B. Levitas "Computerizes Retrieval of Patents" (Book), Vilnius, Lithuanian Institute for Scientific-Technical Information, 1978, 15 p. (in Russian)

11. A. Juozapavičius "Software for Information Retrieval Systems" (Abstract), Proceedings of the Conference "Computers and Technical Devices in Education", Vilnius, Vilnius State University, 1979, 4 p. (in Russian)

12. A. Juozapavičius, S. Svetikas "Information Retrieval System for Data-tape Data Bases" (Abstract), ibid, 2 p. (in Russian)

13. A. Juozapavičius, R. Broniukaitis, J. Zujus "Computerized Retrieval of Patents in LIMTI" (Article), in "Computers and Patents", Moscow, 1979, 4 p. (in Russian)

14. A. Juozapavičius, B. Levitas "Software for Automated Retrieval of Patents" (Article), ibid, 4 p. (in Russian)

15. A. Juozapavičius "State-of-the-Art and Perspectives for Development of Software for Information Retrieval Systems" (Book), Vilnius, Lithuanian Institute for Scientific-Technical Information, 1979, 45 p. (in Russian)

16. A. Juozapavičius "Computerized Processing of Scientific and Engineering Information" (Book), Vilnius, LIMTI, 1979, 19 p. (in Lithuanian)

17. A. Juozapavičius, J. Zujus "How to use Computers in Information Services" (Journal Article), Mokslas ir Technika, Vilnius, 1979, Nr. 4, 5 p. (in Lithuanian)

18. A. Juozapavičius, R. Broniukaitis, V. Seliandin "Information Retrieval Systems in Lithuania" (Book), Vilnius, LIMTI, 1980, 48 p. (in Russian)

19. A. Juozapavičius "The Witt Group of Invariant Symmetric Forms over Galois Extensions of Semilocal Rings" (Abstract), Proceedings of 16-th All-Union Algebraic Conference, Leningrad, 1981, 2 p. (in Russian)

20. A. Juozapavičius "Development and Usage of Software for Data-tape-Bases Processing" (Abstract), Proceedings of the Conference "The Development of Multifunctional Computing Centers", Minsk, 1981, 2 p. (in Russian)

21. A. Juozapavičius "Software for Patent Information Processing: Design and Experience" (Abstract), Proceedings of the Conference "All-Union Patent Information System", Moscow, 1981, 2 p. (in Russian)

22. A. Juozapavičius "Probabilistic Model for Data Base Design and Structuring in Document Processing" (Article), in "Data Bases for Scientific and Technical Information", Moscow, ICSTI, 1982, 6 p. (in Russian)

23. A. Juozapavičius "Structuring of Documents in Data Bases of Publications" (Abstract), Proceedings of Seminar "Influence of Scientific and Technical Information to Industry", Vilnius, LIMTI, 1982, 2 p. (in Russian)

24. A. Juozapavičius "Algorithms of Information Systems in Terms of System Theory" (Article), in "System Theory and it's Aplications", Vilnius, Institute of Mathematics and Cybernatics, 1982, 5 p. (in Russian)

25. A. Juozapavičius, S. Grigelionis, Z. Lupeikis, V. Naikelis, R. Vidūnas "Application of Mathematical Modeling to Quality Control" (Article), Vilnius, LIMTI, 1983, 19 p. (in Russian)

26. A. Juozapavičius, S. Grigelionis, Z. Lupeikis, V. Naikelis, R. Vidūnas "Optimization of Boundaries for Control Parameters Values in Magnetic Heads Production" (Article), Vilnius, LIMTI, 1983, 7 p. (in Rusian)

27. A. Juozapavičius "Ternary Quadratic Forms, Representing Given Sets of Values" (Abstract), Proceedings of 13th All-Union Algebraic Conference, Minsk, 1983, 2 p. (in Russian)

28. A. Juozapavičius "Binary and Quarternary Quadratic Forms with Given Sets of Values" (Abstract), Proceedings of 24th Conference of Lithuanian Mathematical Society, Vilnius, 1983, 1 p. (in Lithuanian)

29. A. Juozapavičius "Mapping of Witt Groups, Induced by Inner Automorphisms" (Abstract), Proceedings of the 25-th Conference of Lithuanian Mathematical Society, Vilnius, 1984, 2 p. (in Russian)

30. A. Juozapavičius "Automorphisms of Witt Groups over Fields with Involution" (Abstract), Proceedings of Symposium in Group Theory, Moscow, MGPI, 1984, 1 p. (in Russian)

31. A. Juozapavičius, V. Naikelis, V. Rimkus "Optimization of Magnetic Heads Production Processes" (Abstract), Proceedings of Seminar of Magnetic Recording Processes, Vilnius, VILMA, 1984, 2 p. (in Russian)

32. A. Juozapavičius "Hermitian Forms over Local Rings with Involution with Given Sets of Values" (Abstract), Proceedings of All-Union Algebraic Conference, Kishinev, 1985, 2 p. (in Rusian)

33. A. Juozapavičius "Quadratic Forms over Local Rings, whose Sets of Values Coincide" (Abstract), Proceedings of 26th Conference of Lithuanian Mathematical Society, Vilnius, 1985, 1 p. (in Russian)

34. A. Juozapavičius "Methods of Specifications in Data Base Engineering for Industrial Processes" (Abstract), ibid, 2 p. (in Russian)

35. A. Juozapavičius, A. Gedvilas "Data, Programs and Text Editing System" (Journal Article), Electronics, Series 3: Microprocessors, Nr. 4, Moscow, 1986, 9 p. (in Russian)

36. A. Juozapavičius "Algorithms of Elementary Operations in Matrices over Euclidian Rings" (Abstract), Proceedings of 28-th Conference of Lithuanian Mathematical Society, Vilnius, 1987, 2 p. (in Lithuanian)

37. A. Juozapavičius "Creating Personal Computer" (Article), Informatika, Nr. 3, Vilnius, 1987, 14 p (in Lithuanian)

38. A. Juozapavičius, V. Naikelis, A. Jakštas "Analysis of Mathematical Model for Magnetic Induction Chain of Magnetic Head" (Abstract), Proceedings of Seminar on Mathematical Modeling of Analog and Digital Recording Processes, Vilnius, VILMA, 1988, 2 p. (in Russian)

39. A. Juozapavičius, V. Naikelis, A. Jakštas "Analysis of Stochastic Relations of Magnetic Head Charasteristics" (Abstract), ibid, 2 p. (in Russian)

40. A. Juozapavičius "Personal Computer" (Journal Article), Mokslas ir Technika, Nr. 8, Vilnius, 1988 (in Lithuanian)

41. A. Juozapavičius "Symbolic Computations for Witt Rings" (Abstract), Proceedings of 29th Conference of Lithuanian Mathematical Society, Vilnius, 1988, 2 p. (in Lithuanian)

42. A. Juozapavičius "Symbolic Computation for Witt Rings" (Article), Proceedings of the International Symposium ISSAC-88, Lecture Notes in Computer Science, v. 358, pp. 271-273, Springer-Verlag, 1989

43. A. Juozapavičius "Quadratic Forms Representing Elements of Witt Rings over Polynomial Rings" (Abstract), Proceedings of 30th Conference of Lithuanian Mathematical Society, Vilnius, 1989, 2 p. (in Lithuanian)

44. A. Juozapavičius "Symbolic Manipulations for Functional Models" (Abstract), Proceedings of the Conference in Computer Programming, Palanga, 1989, 2 p. (in Lithuanian)

45. A. Juozapavičius "The Localization of Quadratic Forms over Polynomials" (Abstract), Proceedings of 32nd Conference of Lithuanian Mathematical Society, Vilnius, 1991, 2 p.

46. A. Juozapavičius "Interactive Retrieval of Information" (Abstract), Proceedings of the Conference of Lithuanian Society for Computer Science, Birštonas, 1993, pp. 86-90 (in Lithuanian)

47. A. Juozapavičius "Information Search in Databases" (Article). Proceedings of the European Conference "Empowering Users in 21st Century", Vilnius, 1993, pp.23-27 (in English)

48. A. Juozapavičius "Information Retrieval Online in Fulltext and Patent Databases" (Article), in: Information Handling, Riga, Latvian Academic Library, 1994,pp. 36-41

49. A. Juozapavičius "Reduction of Binary Quadratic Forms over Polynomials" (Abstract), Proceedings of 32nd Conference of Lithuanian Mathematical Society, Vilnius, 1995, 1 p.

50. F. Ivanauskas, A. Juozapavičius, P. Kurlavičius "The Modeling of White Stork Population in Lithuania" (Journal Article), CICONIA, v. 4, Vilnius, 1996, pp. 10-15 (in Lithunaian)

51. A. Juozapavičius "New Information Systems - Impact to the Society" (Article), Proceedings of the International Conference "Science in a Small State", Vilnius, 1996, 6 p.

52. F. Ivanauskas, A. Juozapavičius, P. Kurlavičius "The Modeling of White Stork (Ciconia ciconia) Population in Lithuania by Statistical Methods and Methods of Graph Theory" (Journal Article), *CICONIA*, v. 5, Vilnius, 1997, pp 32-40 (in Lithuanian)

53. A. Juozapavičius "Data Structures and Algorithms" (Textbook), Vilnius, Vilnius University Press, 1997, 93 p. (in Lithuanian)

54. A. Juozapavičius, M. Sapagovas "Modeling and Control of Nonlinear Processes" (Journal Article), *Mokslas ir Technika*, Nr. 5, 1997, pp.6-7 (in Lithuanian)

55. A. Juozapavičius "Activities of Nonlinear Analysts of Lithuania" (Information), *The SAC Newsletter*, Nr. 2, June 1997, 2 p.,

56. A. Juozapavičius "Research Information Systems" (Article), in *"Nonlinear Processes: Modelling and Control"*, Nr.1, Vilnius, MII, 1997, pp.3 -37,

57. A. Juozapavičius, G.Specht. "Concept-based Indexing in Multimedia Databases: Fundamentals - an Introduction", (Article). *Proceedings of 8th Conference of Lithuanian Computer Society*, 1 7-20 September, 1997, Birštonas, pp.166-175

58. A. Juozapavičius, V.Mieliauskas. "Hausdorff dimension of Lithuanian characters" (Abstract). *Proceedings of 38th Conference of Lithuanian Mathematical Society*, 18-19 June, 1997, Vilnius, p.5

59. A. Juozapavičius. "Symbolic Computation: Systems and Applications" (Article). *Nonlinear Processes: Modelling and Control*, Nr. 3, Vilnius, MII, pp. 13-39

60. A. Juozapavičius. "The Search and Retrieval of Scientific Information on Internet". Preprint Nr. 98-17, Vilnius, MII, 1998, 83 pp. (in Lithuanian)

61. A. Juozapavičius, R. Blake. "Indices in Information Systems", *Informatica*, v.10, Nr.1, Vilnius, MII, 1999

62. A. Juozapavičius, R. Blake, M. Plukas. "Content-based Approach to the Graph Matching in Computer Vision" (abstract), in *Proceedings of the 4th International Conference "Mathematical Modelling and Analysis"*, June 3-4, 1999, MII, Vilnius, Lithuania

63. A.Juozapavičius, J. Skučas. "Temporal Properties in Object Modeling and their Implementation in Relational Databases", in *Proceedings of the 4th IEEE International Baltic Workshop*, May 1-5, pp.75-85, Vilnius, 2000

64. R. Blake, A. Juozapavičius. "Quality of Colour Image Segmentation: the Measures" (Article). *Nonlinear Processes: Modelling and Control*, Nr. 5, Vilnius, MII, pp. 53-66

65. A. Juozapavičius, F. Ivanauskas. "Statistical Modelling of white stork Population." New trends in Statistical Modelling. *Proceedings of the 16th International Workshop on Statistical Modelling,* Odense, Denmark, July 2-6, 2001, p. 457-460

66. A. Juozapavičius, V. Rapševičius. "Clustering through Decision Tree Construction in Geology", *Nonlinear Ananlysis:Modelling and Control*, v. 6, Nr. 2, 2001, p/ 29-41

67. A. Dementjev, A. Juozapavičius, V. Kiško, V. Lasys. "The Calculation of M2 factor for Laser beam by Cutting knife method." *Proceedings of the National Physics Conference*, Vilnius, Lithuania, June 14-15 (in Lithuanian)

Submitted for publication:

• R. Blake, A. Juozapavičius. Scheduling in Model-based Computer Vision, *Pattern Recognition*, 13 pp.

11. Talks at Conferences, Seminars etc. (not published)

- "Structure of Unitary and Orthogonal Groups over Local Rings" and "Invariant Subspaces in Quadratic and Hermitian Forms over Local Rings" - talks at Yale University, Pennsylvania State University, University of Connecticut, University of Chicago, USA 1986
- "Algorithms for Reduction of Quadratic Forms over Integers" - University of Leipzig, Greifswald University, DDR, 1987
- "Complexity of Reduction of Homogeneus Polynomials over Local Rings" – Seminar of SIGALG, University of Delaware, USA, 1989
- "Algorithmic Methods in Knowledge Databases" - Charles University, Czechoslovakia, 1990
- "Design of Knowledge Databases" - Greifswald University, DDR, 1990
- "Algebraic Manipulations in Curricula of Computer Science" - Greifswald University, Germany, 1992
- "Algorithmic Methods in the Theory of Quadratic Forms over Polynomials" - University of Kansas, USA, 1994
- "Reduction of Quadratic Forms over Polynomials" – Seminar of SIGALG, University of Delaware, USA, 1995
- "Data Structures and Algorithms" – University of Technology, Munich, Germany, 1996
- "Research Information Systems" – National Academic Seminar "Modelling and Control of Nonlinear Processes", Vilnius, Lithuania, 1996
- "Fractal Dimensions and Hierarchical Data Structures" - Seminar SIGALG, University of Delaware, USA, 1997
- "Symbolic Computation: Algorithms and Applications" – Conference of Lithuanian Mathematical Society (invited lecture), Kaunas, 1998
- "Indices in Information Systems" - Seminar of Informatics, Karlstad University, Sweden, 1998
- "Symbolic Computation: Systems and Algorithms" - Seminar of Computer Science, NTNU, Norway, 1998
- "The Impact of global Warming upon Arrival of Birds and Modelling of White Stork Population in Lithuania" (together with F. Ivanauskas), Colloquium of Biomathematics, Greifswald University, Germany, 2000
- "Symbolic Methods in Computer Vision" – Seminar of Computer Science, NTNU, Norway, 2000