

## *Curriculum Vitae*

**Andreas Varga**

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### I. *Personal Information*

#### 1. *Personal Data*

Date of Birth    January 11, 1950  
Place of Birth    Baraolt, Romania  
Family            wife, two children  
Languages        German, English, French, Hungarian, Romanian, Russian (reading)

#### 2. *Educational Background*

Engineer degree in Control Engineering, University "Politehnica" Bucharest    July 1974  
Doctoral degree in Electrical Engineering, University "Politehnica" Bucharest    Sep. 1981

#### 3. *Current Employment*

From 1999	Senior Scientist	Institute of Robotics and Mechatronics German Aerospace Center, DLR Oberpfaffenhofen
1993–1999	Research Associate	Institute of Robotics and Mechatronics German Aerospace Center, DLR Oberpfaffenhofen
1992–1993	Research Associate	Department of Mechanical Engineering University of Bochum
1990–1992	Alexander von Humboldt Research Fellow	Department of Mechanical Engineering University of Bochum
1977–1990	Research Engineer	Institute of Informatics Bucharest
1977–1980	Teaching Assistant (Part-Time)	Department of Control Engineering University "Politehnica" Bucharest
1974–1977	Software Engineer	Institute for Informatics Bucharest

#### 4. *Visiting Positions*

July 1994	Department of Engineering, University of Kyoto
Sep. – Oct. 2000	Control and Dynamical Systems, California Institute of Technology
Nov. – Dec. 2000	Research School of Information Sciences and Engineering, Australian National University
Dec. 2000	Department of Electrical & Electronic Engineering The University of Hong Kong
Oct. 2002	Department of Computer Science University of Umea

5. *Awards*

- 1986 Research Fellowship Award of the Alexander von Humboldt Foundation, Bonn  
1999 Senior Scientist Award of the German Aerospace Center  
2003 IEEE Fellow; citation "for contributions to the development of numerical methods for computer aided analysis and design of control systems"

6. *Research Interests*

Computational methods for control systems with special emphasis on robust control, fault detection, model and controller reduction, descriptor systems, and periodic systems; computer aided control system design.

7. *Publications*

Three books coauthored, one book coedited and over 195 papers (see Section II)

8. *Memberships*

- Since 1997 Member IEEE, Senior Member since 1998, Fellow since 2003  
Since 1995 Member of SIAM  
1990–2000 Member of WGS (European Working Group on Software)  
Since 2001 Member of NICONET (Numerics in Control Network)  
Since 2008 Vice-chairman of NICONET Association (e.V.)

9. *IEEE Control Systems Society Related Activities*

- 2002–2003 Member (appointed), *Board of Governors*  
2000–2004 Chairman, *Technical Committee on Computer Aided Control System Design*  
1998–2004 Chairman, *Working Group on Control Numerics and Software, Technical Committee on Computer Aided Control System Design*  
1993–1999 Chairman, *Working Group on Computational Issues and Avionics Software, Technical Committee on Aerospace and Vehicular Controls*

10. *Editorial Activities*

- Associate Editor, *IEEE Transactions on Automatic Control* (1996–1999)  
Associate Editor, *Studies in Informatics and Control* (1992–1995)  
Book Co-Editor, *Advanced Techniques for Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 283, Springer-Verlag, Berlin, 2002;  
Book Co-Editor, *Optimization Based Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 416, Springer-Verlag, Berlin, 2011;  
Guest Editor *Control System Magazine*, vol.24, no.1, 2004:  
Special Issue on "Numerical Awareness in Control"  
Guest Editor *Linear Algebra and Its Applications*, vol.415, Issues 2-3, 2006:  
Special Issue on "Order Reduction of Large-Scale Systems"

11. *Reviewing Activities*

*Automatica, IEEE Transactions on Automatic Control, European Journal of Control, Journal of Dynamic Systems, Measurement, and Control, International Journal of Robust and Non-linear Control, International Journal of Systems Science, Systems and Control Letters, SIAM Journal on Matrix Analysis and Applications, BIT, Linear Algebra and Its Applications, ACM Transactions on Mathematical Software, Electronic Transactions on Numerical Analysis*

12. *Conference Organization Related Activities*

Organizer, Workshop on Clearance of Flight Control Laws, Sienna, September 26, 2008

Organizer, Workshop on Clearance of Flight Control Laws, Stockholm, January 29, 2010

General Chair, 2006 IEEE Conference on Control Applications,  
2006 IEEE Computer Aided Control System Design Symposium, and  
2006 IEEE International Symposium on Intelligent Control  
(2006 CCA/CACSD/ISIC, October 3-6, 2006, Munich, Germany)

General Chair, 11. IEEE Computer Aided Control System Design Symposium  
(CACSD'2000, September 23–26, 2000, Anchorage, Alaska)

Program Chair, 10. IEEE Computer Aided Control System Design Symposium  
(CACSD'99, August 23–26, 1999, Kohala Coast, Hawaii)

Member of International Program Committees:

IEEE CACSD'96 Symposium, Dearborn (1996)

IFAC CACSD'97 Symposium, Ghent (1997)

IFAC Conference on System Structure and Control, Bucharest (1997)

IFAC Conference on System Structure and Control, Nantes (1998)

IFAC Symposium on Large Scale Systems, Bucharest (2001)

IFAC Workshop on Periodic Control Systems, Como (2001)

IFAC Symposium on System Structure and Control, Prague (2001)

IEEE CACSD'02 Symposium, Glasgow (2002)

IEEE CACSD'04 Symposium, Taipei (2004)

IFAC Workshop on Periodic Control Systems, Yokohama (2004)

IFAC/IFORS/IMACS/IFIP Symposium on Large Scale Systems, Osaka (2004)

6th ESA Conference on Guidance, Navigation and Control Systems, Loutraki, Greece (2005)

IFAC Symposium on Robust Control Design Toulouse, France (2006)

IFAC Workshop on Periodic Control Systems (PSYCO) St. Petersburg, Russia (2007)

16th Internat. Conf. on Control Systems and Computer Science, Bucharest (2007)

7th ESA Conference on Guidance, Navigation and Control Systems, Tralee (2008)

16th Mediterranean Conference on Control and Automation, Ajaccio, France (2008)

European Control Conference, Budapest, Hungary (2009)

IFAC SAFEPROCESS, Barcelona, Spain (2009)

IEEE Conference on Decision and Control, Shanghai, China (2009)

IFAC Workshop on Periodic Control Systems (PSYCO) Antalya, Turkey (2010)

IEEE CACSD'10 Symposium, Yokohama, Japan (2010)

Conference on Control and Fault-Tolerant Systems (SYSTOL), Nice (2010)

Workshop on Advanced Control and Diagnosis (ACD), Ferrara, Italy, (2010)

IEEE CACSD'11 Symposium, Denver, USA (2011)

Invited Sessions Organizer:

ACC (1995), CACSD (1996), ECC (1997), MTNS (1998), CDC (2003), PSYCO (2007),  
SAFEPROCESS (2009)

13. *Invited/Plenary Talks*

1. *Computational Methods for Stabilization of Descriptor Systems*  
1. Workshop über Deskriptorsysteme, Paderborn (1992)
2. *Factorization Techniques for Descriptor Systems*  
2. Workshop über Deskriptorsysteme, Paderborn (1994)
3. *Computation of Kronecker-like Forms of System Pencils and Applications*  
3. Workshop über Deskriptorsysteme, Paderborn (1996)
4. *On Periodic Linear Matrix Equations: Applications, New Algorithms and Software*  
Householder Symposium XIII, Pontresina, Switzerland (1996)
5. *Computational Challenges in Flight Control Design*  
Plenary talk at 3rd IEEE Workshop on Computer-Intensive Methods in Control and Data Processing, Prague (1998)
6. *A Descriptor Systems Toolbox for MATLAB*  
4. Workshop über Deskriptorsysteme, Paderborn (1998)
7. *Robust Pole Assignment for Descriptor Systems*  
5. Workshop über Deskriptorsysteme, Paderborn (2000)
8. *Computational Methods for Periodic Systems* (with P. Van Dooren)  
Householder Symposium XV, Peebles, Scotland (2002)
9. *Control-Oriented Low Order Modelling of Flexible Aircraft* (with G. Looye)  
Annual Conference of the GAMM, Abano-Terme (2003)
10. *Computational issues in fault detection filter design*  
6. Workshop über Deskriptorsysteme, Paderborn (2003)
11. *Recent Enhancements of Controller Reduction Methods*  
Workshop on Dimensional Reduction of Large-Scale Systems, Oberwolfach (2003)
12. *Controller Reduction Methods and Software Tools*  
Workshop on Robust Control and Space Applications, Toulouse (2003)
13. *Model and Controller Reduction*  
Tutorial Workshop on Advanced Computational Tools for Computer-Aided Control System Design, European Control Conference, Cambridge (2003)
14. *Kronecker-like forms of periodic matrix pairs: computation and applications*  
7. Workshop über Deskriptorsysteme, Paderborn (2005)
15. *Solving Control Problems - a Numerical Perspective*  
Plenary talk at IEEE Multi-conference on Systems and Control, San Antonio, USA (2008)
16. *Numerical Methods for Continuous-Time Periodic Systems*  
Householder Symposium XVII, Zeuthen, Germany (2008)
17. *Descriptor system techniques in solving  $\mathcal{H}_2$ -optimal fault detection problems*  
Workshop on Control and Optimization with Differential-Algebraic Constraints, BIRS, Banff (2010)
18. *Solving Fault Diagnosis Problems – a Computational Perspective*  
Plenary talk at 9th European Workshop on Advanced Control and Diagnosis, Budapest, Hungary (2011)

14. *Participation in Research and International Cooperation Projects*

- 1994 – 1998 DFG-Research Project: *Numerical Methods for Large and Singular Control Problems*, with V. Mehrmann (TU Chemnitz) and A. Bunse-Gerstner (Univ. Bremen)
- 1996 – 2002 NICONET – *Numerics in Control Network* (17 European partners)  
Leader of the work packages: (1) *Software for model and controller reduction*;  
(2) *Basic software tools for standard and generalized state-space systems and transfer matrix factorizations*
- 1998 – 2007 GARTEUR - Group for Aeronautical Research and Technology in Europe  
– *Robust Flight Control* (1998)  
– *New analysis techniques for clearance of flight control laws* (1999–2002)  
Leader of the work package: *Robustness Analysis Techniques*  
– *Fault Tolerant Control* (2004–2007)
- 2000 – 2004 DFG-Research Project: *Numerical methods for robust control*,  
with V. Mehrmann (TU Berlin), P. Benner (TU Chemnitz) and  
A. Bunse-Gerstner (Univ. Bremen)
- 2002 – 2009 Swedish Strategic Research Foundation Grant:  
*Matrix Pencil Computations in Computer-Aided Control System Design:  
Theory, Algorithms and Software Tools*, with the University of Umea,  
Department of Computing Science & High Performance Computing Center North
- 2006 – 2009 DLR – ONERA Joint Research Project:  
IMMUNE – *Intelligent Monitoring and Management of Unexpected Events*
- 2007 – 2010 COFCLUO – *Clearance of Flight Control Laws Using Optimization*  
Manager of the work package: *Modeling*
- 2009 – 2012 ADDSAFE – *Advanced Fault Diagnosis for Sustainable Flight Guidance and Control*  
Manager of the work packages: *Industrial Benchmark Problem & Software Tools*

15. *Software Development Activities*

Developer of 9 software packages and co-developer of 7 software packages for computer-aided control system design (see Section III)

16. *Other activities*

- Oct. 2004 Chairman of the INRIA Evaluation Committee for theme Num A:  
"Control and Complex Systems"

17. *Official Contacts*

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DLR Oberpfaffenhofen  
Institute of Robotics and Mechatronics  
D-82234 Wessling, Germany.

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Homepage <http://www.robotic.dlr.de/Andras.Varga/>

## II. List of Publications

### 1. Books

- [B1] V. Sima and A. Varga. *Computer Aided Optimization Practice*. Editura Tehnica, Bucharest, 372 pages, 1986. (in Romanian)
- [B2] V. Ionescu and A. Varga. *System Theory: Robust Synthesis and Numerical Methods*. Editura ALL, Bucharest, 504 pages, 1995. (in Romanian)
- [B3] A. Varga und V. Sima. *Computer Aided Control System Design: Algorithms and Software*. Editura Tehnica, Bucharest, 428 pages, 1998. (in Romanian)
- [B4] C. Fielding, A. Varga, S. Bennani, and M. Selier (Eds.) *Advanced Techniques for Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 283, Springer-Verlag, Berlin, 2002.
- [B5] A. Varga, A. Hansson, and G. Puyou (Eds.) *Optimization Based Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 416, Springer-Verlag, Berlin, 2011.

### 2. Refereed Journal Publications and Book Chapters

- [J1] A. Varga. Usefulness of the row echelon form of a matricial pair (A,B) in the structural analysis of linear systems. *Revue Roum. Scie. Techn. – Electrotechn. & Energ.*, 23:121–128, 1978.
- [J2] A. Varga. An efficient algorithm for the calculation of the Tuel canonical form. *Bul. Univ. Galați*, Fasc. III:71–75, 1978.
- [J3] A. Varga. Numerically reliable algorithm to test controllability. *Electron. Lett.*, 15:452–453, 1979.
- [J4] A. Varga. Efficient algorithm for computation of supremal output-nulling invariant and controllability subspaces. *Revue Roum. Scie. Techn. – Electrotechn. & Energ.*, 25:76–80, 1980.
- [J5] A. Varga and V. Sima. A numerically stable algorithm for transfer-function matrix evaluation. *Int. J. Control*, 33:1123–1133, 1981.
- [J6] A. Varga. On stabilization algorithms for linear time-invariant systems. *Rev. Roum. Scie. Techn. – Electrotech. & Energ.*, 26:115–124, 1981.
- [J7] A. Varga. A Schur method for pole assignment. *IEEE Trans. Autom. Contr.*, 26:517–519, 1981.
- [J8] A. Varga. Numerically stable algorithm for standard controllability form determination. *Electron. Lett.*, 17:74–75, 1981.
- [J9] A. Varga. Computation of irreducible generalized state-space realizations. *Kybernetika*, 26:89–106, 1989.
- [J10] A. Varga. Computation of transfer function matrices of generalized state-space models. *Int. J. Control*, 50:2543–2561, 1989.
- [J11] A. Varga. A note on Hammarling’s algorithm for the discrete Lyapunov equation. *Systems & Control Letters*, 15:273–275, 1990.
- [J12] A. Varga. Computation of zeros of generalized state-space systems. *Studies and Research in Computers and Informatics*, 1(4):59–67, 1990.

- [J13] K. H. Fasol, H. G. Gehre, und A. Varga. Anmerkungen zum Beitrag von R. Guth: Stationär genaue Ordnungsreduktion balancierter Zustandsraummodelle. *Automatisierungstechnik*, 40:270–272, 1992.
- [J14] K. H. Fasol und A. Varga. Zur Ordnungsreduktion linearer Systeme. Diskussion, Erprobung und Vergleich einiger Methoden. *Automatisierungstechnik*, 41:6–18, 1993.
- [J15] A. Varga. RASP-DESCRIPT – eine Programmbibliothek zur Analyse und Modellierung von Deskriptor-Systemen. *Automatisierungstechnik*, 41:269–270, 1993.
- [J16] A. Varga. RASP-MODRED – eine Programmbibliothek zur Modellreduktion. *Automatisierungstechnik*, 41:270–272, 1993.
- [J17] A. Varga. Coprime factors model reduction based on accuracy enhancing techniques. *Systems Analysis Modelling and Simulation*, 11:303–311, 1993.
- [J18] P. Misra, P. Van Dooren, and A. Varga. Computation of structural invariants of generalized state space systems. *Automatica*, 30:1921–1936, 1994.
- [J19] A. Varga. On stabilization of descriptor systems. *Systems & Control Letters*, 24:133–138, 1995.
- [J20] A. Varga. On computing high accuracy solutions of a class of Riccati equations. *Control – Theory and Advanced Technology*, 10(4-Part 5):2005–2016, 1995.
- [J21] A. Varga. Enhanced modal approach for model reduction. *Mathematical Modelling of Systems*, 1:91–105, 1995.
- [J22] A. Varga. A multishift Hessenberg method for pole assignment of single-input systems. *IEEE Trans. Autom. Contr.*, 41:1795–1799, 1996.
- [J23] A. Varga und G. Grübel. Berechnung optimaler Ausgangsrückkopplungen zur Lösung von Multimodellproblemen. *Automatisierungstechnik*, 44:533–540, 1996.
- [J24] A. Varga. Periodic Lyapunov equations: some applications and new algorithms. *Int. J. Control*, 67:69–87, 1997.
- [J25] A. Varga and T. Katayama. Computation of J-inner-outer factorizations of rational matrices. *Int. J. Robust and Nonlinear Control*, 8:245–263, 1998.
- [J26] A. Varga. Computation of coprime factorizations of rational matrices. *Linear Algebra and Its Applications*, 271:83–115, 1998.
- [J27] A. Varga. Computation of normalized coprime factorizations of rational matrices. *Systems and Control Letters*, 33:37–45, 1998.
- [J28] A. Varga. Computation of inner-outer factorizations of rational matrices. *IEEE Trans. Autom. Contr.*, 43:684–688, 1998.
- [J29] A. Varga and S. Pieters. Gradient-based approach to solve optimal periodic output feedback control problems. *Automatica*, 34:477–481, 1998.
- [J30] A. Varga, G. Looye, D. Moormann and G. Grübel. Automated generation of LFT-based parametric uncertainty descriptions from generic aircraft models. *Mathematical and Computer Modelling of Dynamical Systems*, 4:249–274, 1998.
- [J31] P. Benner, V. Sima, V. Mehrmann, S. Van Huffel and A. Varga. SLICOT - A Subroutine Library in Systems and Control. In B. N. Datta (Ed.), *Applied and Computational Control, Signals and Circuits*, Birkhäuser, Basel, vol. 1, pp. 505–546, 1999.
- [J32] A. Varga. Balancing related methods for minimal realization of periodic systems. *Systems and Control Letters*, 36:339–349, 1999.

- [J33] C. Oară and A. Varga. Minimal degree coprime factorization of rational matrices. *SIAM J. Matrix Analysis and Applications*, 21:245–278, 1999.
- [J34] H.-D. Joos, A. Varga, R. Finsterwalder und J. Bals. Eine integrierte Entwurfsumgebung für Flugregelungsaufgaben. *Automatisierungstechnik* 47: 239–248, 1999.
- [J35] A. Varga. Robust and minimum norm pole assignment with periodic state feedback. *IEEE Trans. Autom. Contr.* 45:1017–1022, 2000.
- [J37] C. Oară and A. Varga. Computation of the general inner–outer and spectral factorizations. *IEEE Trans. Autom. Contr.* 45:2307–2325, 2000.
- [J38] A. Varga. Model reduction software in the SLICOT library. In Ed. B. N. Datta, *Applied and Computational Control, Signals and Circuits*, vol. 2, pp. 239–282, Kluwer Academic Publishers, Boston, 2001.
- [J39] A. Varga. Computing generalized inverse systems using matrix pencil methods. *Int. J. of Applied Mathematics and Computer Science*, 11:1055–1068, 2001.
- [J40] A. Varga. Optimisation-based clearance. In C. Fielding, A. Varga, S. Bennani, and M. Selier (Eds.) *Advanced Techniques for Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 283, pp. 107–117, Springer-Verlag, Berlin, 2002.
- [J41] A. Varga. Optimisation-based clearance: the linear analysis. In C. Fielding, A. Varga, S. Bennani, and M. Selier (Eds.) *Advanced Techniques for Clearance of Flight Control Laws, Lecture Notes in Control and Information Science*, vol. 283, pp. 385–413, Springer-Verlag, Berlin, 2002.
- [J42] A. Varga and B. D. O. Anderson. Accuracy-enhancing methods for balancing-related frequency-weighted model and controller reduction. *Automatica*, 39:919–927, 2003.
- [J43] A. Varga. A numerically reliable approach to robust pole assignment for descriptor systems. *Future Generation Computer Systems*, 19:1221–1230, 2003.
- [J44] A. Varga. New computational approach for the design of fault detection and isolation filters. In M. Voicu (Ed.), "Advances in Automatic Control", vol. 754 of The Kluwer International Series in Engineering and Computer Science, Kluwer Academic Publishers, pp. 367–381, 2003.
- [J45] A. Varga. Computation of transfer function matrices of periodic systems. *International Journal of Control*, 76:1712-1723, 2003.
- [J46] A. Varga and P. Van Dooren. Computing the zeros of periodic descriptor systems. *Systems and Control Letters*, 50:371-381, 2003.
- [J47] A. Varga. Computation of minimal periodic realizations of transfer-function matrices. *IEEE Trans. on Autom. Control*, 46:146–149, 2004.
- [J48] A. Varga. Computation of Kalman decompositions of periodic systems. *European Journal of Control*, 10:1-8, 2004.
- [J49] A. Varga. Numerical awareness in control. *IEEE Control Systems Magazine*, 24:14-17, 2004.
- [J50] S. Van Huffel, V. Sima, A. Varga, S. Hammarling and F. Delebecque. High-performance numerical software for control. *IEEE Control Systems Magazine*, 24:60–76, 2004.
- [J51] S. Hecker and A. Varga. Generalized LFT-based representation of parametric uncertain models. *European Journal of Control*, 10:326-337, 2004.

- [J52] S. Hecker, A. Varga and J.-F. Magni. Enhanced LFR-Toolbox for MATLAB. *Aerospace Science and Technology*, 9:173-180, 2005.
- [J53] A. Varga. Controller reduction using accuracy-enhancing methods. In P. Benner, V. Mehrmann, and D. Sorensen (Eds.) *Dimension Reduction of Large-Scale Systems, Lecture Notes in Computational Science and Engineering*, vol. 45, pp. 225–260 Springer-Verlag, Berlin, 2005.
- [J54] S. Hecker and A. Varga. Symbolic manipulation techniques for low order LFT-based parametric uncertainty modelling. *International Journal of Control*, 11:1485–1494, 2006.
- [J55] A. Varga. On solving periodic Riccati equations. *Linear Numerical Algebra with Applications* 15:809-835, 2008.
- [J56] P. Benner, D. Kressner, V. Sima und A. Varga. Die SLICOT-Toolboxen für Matlab. *at – Automatisierungstechnik*, 58:15–25, 2010.
- [J57] L. Viganò, M. Bergamasco, M. Lovera and A. Varga. Optimal periodic output feedback control: a continuous-time approach and a case study. *International Journal of Control*, 83:897–914, 2010.
- [J58] T. Pulecchi, M. Lovera and A. Varga. Optimal discrete-time design of three-axis magnetic attitude control laws. *IEEE Transactions on Control Systems Technology*, 18:714–722, 2010.
- [J59] S. Gusev, S. Johansson, B. Kågström, A. Shiriaev and A. Varga. A numerical evaluation of solvers for the periodic Riccati differential equation. *BIT Numerical Mathematics*, 50:301–329, 2010.
- [J60] A. Varga. Detection and Isolation of Actuator/Surface Faults for a Large Transport Aircraft. In C. Edwards, T. Lombaerts and H. Smaili (Eds.) *Fault Tolerant Control - A Benchmark Challenge, Lecture Notes in Control and Information Science*, vol. 399, pp. 423–442, Springer-Verlag, Berlin, 2010.
- [J61] Y. Feng, A. Varga, B. D. O. Anderson and M. Lovera. A new iterative algorithm to solve periodic Riccati differential equations with sign indefinite quadratic terms. *IEEE Transactions on Automatic Control*, 56(4):929–934, 2011.
- [J62] A. Varga. On computing minimal proper nullspace bases with applications in fault detection. In P. Van Dooren, S. P. Bhattacharyya, R. H. Chan, V. Olshevsky, and A. Routray (Eds.) *Numerical Linear Algebra in Signals, Systems and Control, Lecture Notes in Electrical Engineering*, vol. 80, pp. 433–465, Springer-Verlag, Berlin, 2011.

### 3. Conference Publications

- [C1] A. Davidoviciu, T. Popescu, V. Sima, A. Varga, and C. Vasiliu. A suite of computer programs for process identification and control system design. *Prepr. of IFAC Workshop on Comp. Appl. in Discrete Manufacturing, Prague*, 1977.
- [C2] C. Vasiliu and A. Varga. Model analysis and conversion techniques in control systems design. *Proc. of First Symp. on Modelling, Simulation, Identification and Optimization of Technological Systems, Galați*, 1978. (in Romanian)
- [C3] A. Varga. Comparison of pole assignment techniques for controller design. *Proc. of First Symp. on Modelling, Simulation, Identification and Optimization of Technological Systems, Galați*, 1978. (in Romanian)

- [C4] F. Hărtescu, V. Sima, and A. Varga. A data base for a computer aided control system design package. *Proc. of First Symp. on Modelling, Simulation, Identification and Optimization of Technological Systems, Galați*, 1978. (in Romanian)
- [C5] A. Varga. Numerically stable algorithm to test controllability. *Proc. of 3-rd Int. Conf. on Control and Informational Systems in Industry, Bucharest*, 1979.
- [C6] T. Popescu, V. Sima, A. Varga, and C. Vasiliu. A program package for identification and design of control systems. *Proc. of 3-rd Int. Conf. on Control and Informational Systems in Industry, Bucharest*, vol. 2, pp. 355–368, 1979.
- [C7] A. Varga, T. Popescu, V. Sima, and C. Vasiliu. Process control algorithms for microprocessors. In M. Novak, editor, *Software for Computer Control*. Pergamon Press, 1979.
- [C8] T. Popescu, V. Sima, A. Varga, and C. Vasiliu. Program package for identification and control systems design. In M.A.Cuenod, editor, *Computer Aided Design of Control Systems*, Pergamon Press, 1980.
- [C9] A. Varga. On stabilization algorithms for linear systems. *Proc. of 2-nd Symp. on Modelling, Simulation, Identification and Optimization of Technological Systems, Galați*, 1980. (in Romanian)
- [C10] A. Varga. A Schur method for model reduction. *Prepr. of First Int. Symp. and Exhibition Applied Modelling and Simulation, Lyon*, 1981.
- [C11] A. Varga. The numerical stability of an algorithm for pole assignment. In G. Leininger, editor, *Computer Aided Design of Multivariable Technological Systems. Proc. of 2-nd IFAC Symp.*, pp. 117–122. Pergamon Press, Oxford, 1983.
- [C12] A. Varga. Computer aided design of robust compensators by pole assignment. *Prepr. of 3-rd IFAC/IFIP Symp. on Software for Computer Control, Madrid*, 1982.
- [C13] A. Varga. A pole assignment algorithm for systems in generalized state-space form. *Proc. of 5-th Int. Conf. Control and Informational Systems in Industry, Bucharest, Romania*, vol. 1, pp. 91–95, 1983.
- [C14] A. Varga and C. Varga. A command language for computer aided design with application in control theory. *Proc. of 5-th Int. Conf. Control and Informational Systems in Industry, Bucharest, Romania*, vol. 3, pp. 303–307, 1983. (in Romanian)
- [C15] A. Varga, V. Sima, and C. Varga. On numerical simulation of linear continuous systems. *Prepr. of Int. Conf. Simulation of Systems, Prague*, 1983.
- [C16] A. Varga. Computer aided analysis and design of control systems: achievements and perspectives. *Proc. of 3-rd National Symp. on System Theory, Craiova, Romania*, 1984. (in Romanian)
- [C17] A. Varga and V. Sima. BIMAS – A basic mathematical package for computer aided systems analysis and design. In J. Gerter and L. Keviczky, editors, *Proc. of 9-th IFAC World Congress, Budapest, Hungary*, 1985.
- [C18] A. Davidoviciu and A. Varga. CASAD - An interactive package for computer aided systems analysis and design. In A. Bensoussan and J.L. Lions, editors, *Analysis and Optimization of Systems*, Lect. Notes in Control and Inf. Science. Springer Verlag, 1984.
- [C19] A. Varga. CASAM – An interactive package for computer aided systems analysis and modelling. In A. Sydow, M. Thoma, and R. Vichnevetsky, editors, *Systems Analysis and Simulation*, vol. 2, pp. 120–123, Akademie-Verlag, Berlin, 1985.

- [C20] A. Varga and A. Davidoviciu. BIMASC - A package of Fortran subprograms for analysis, modelling, design and simulation of control systems. In N. E. Hansen and P. M. Larsen, editors, *Proc. of 3-rd IFAC/IFIP Symp. CADCE'85, Copenhagen, Denmark*, pp. 151–156. Pergamon Press, Oxford, 1986.
- [C21] A. Varga and C. Varga. CAD techniques for optimal position control systems. *Proc. of the Int. Conf. on Electrical Machines and Drives Systems, Eforie Nord, Romania*, vol. 3, 1986.
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### III. Software Development Activities

Developer or co-developer(\*) of software for *Computer-Aided Control System Design* (CACSD):

#### 1. Fortran Subroutine Libraries

<b>SIPAC*</b>	Library for CACSD [C8] (jointly with Th. Popescu, V. Sima, C. Vasiliu)	1974–1979
<b>BIMAS*</b>	Basic mathematical library for CACSD [C17, B3] (jointly with V. Sima)	1981–1984
<b>BIMASC</b>	Library for CACSD [C20, B3]	1983–1989
<b>DESCRIPT</b>	Library for descriptor systems [J16, T5] (Contribution to RASP, the CACSD library of DLR)	1991
<b>MODRED</b>	Library for model reduction [J16, T6] (Contribution to RASP, the CACSD library of DLR)	1992
<b>SLICOT*</b>	Library for systems and control [J31, J38, T19, T21, C80, J50] (jointly with NAG, WGS and NICONET)	from 1991
<b>RASP*</b>	Library for CACSD [J15, T5, J16, T6, C40] (jointly with J. Bals, H.-D. Joos, R. Finsterwalder, M. Otter)	from 1992

#### 2. Interactive Packages

<b>SIPAC*</b>	Interactive package for CACSD [C8] (jointly with Th. Popescu, V. Sima, C. Vasiliu)	1978–1981
<b>CASAD</b>	Interactive package for CACSD [C18]	1983–1989
<b>CASAM</b>	Interactive package for system analysis and modelling [C19]	1983–1985
<b>SISPACK</b>	Interactive package for nonlinear system simulation [C22]	1984–1985
<b>ANDECS*</b>	Interactive package of DLR for CACSD [C43] (jointly with J. Bals, H.-D. Joos, R. Finsterwalder, M. Otter)	1993-1995
<b>FSA*</b>	A First-Shot Approach Demonstrator for a robust flight control systems design environment [J34, C73] (jointly with J. Bals, H.-D. Joos, R. Finsterwalder)	1998

#### 3. MATLAB Toolboxes

<b>HTOOLS</b>	MATLAB toolbox for $H_\infty$ synthesis [C28, B2]	1989-1992
<b>DESCRIPTOR</b>	MATLAB toolbox for descriptor systems [C78, J50]	from 1997
<b>LFR*</b>	MATLAB toolbox for linear fractional representations [C107, J52, C113] (jointly with S. Hecker, J.-F. Magni)	from 2003
<b>PERIODIC</b>	MATLAB toolbox for periodic systems [C110]	from 2004
<b>FDTools</b>	MATLAB toolbox for fault detection [C119, T26]	from 2005