

PERSONAL INFORMATION

Csaba Antonya



📍 str. Politehnicii nr. 1 Braşov (Romania)

☎ (+40)-268-418967

✉ antonya@unitbv.ro

POSITION IOSUD UTBV

PhD Coordinator

Doctoral studies field: Mechanical Engineering

Since: 2008

EXPERTISE FIELD AND RESEARCH INTEREST AREAS

1D and 2D simulations

Dynamics of mechanical systems, multi-body systems

Simulations and virtual reality

Autonomous vehicles

WORK EXPERIENCE

2007 **Professor at the Faculty of Mechanical Engineering, Transilvania University of Brasov**

Transilvania University of Brasov
29 Eroilor, 500036 Brasov (Romania)

www.unitbv.ro

Teaching activities in Mechanisms, Autonomous vehicles, Simulation and dynamics of mechanical systems

Research activities in mechanical systems, virtual reality, visualization, haptics, human computer interaction

Business or sector Education and research

2004–2007 **Associate Professor at the Department of Product Design and Robotics, Transilvania University of Braşov**

Transilvania University of Brasov
29 Eroilor, 500036 Brasov (Romania)

Teaching activities in Mechanisms, Robotics and Virtual Reality (Simulation techniques, Vision, Virtual prototyping).

Research activities in robotics, virtual reality, visualization, haptics, human computer interaction

Business or sector Education and research

1996–2004 **Lecturer at the Department of Product Design and Robotics, Transilvania University of Brasov**

Transilvania University of Brasov

1995–1996 **Research and development engineer**

Tractor Proiect S.A., Brasov

Business or sector Research and development

2009–2013 **Research and development engineer**

Computer Sharing București, București
10731 Calea Grivitei nr. 6, sector 1, Bucuresti
www.csb.ro

Research activities in the ARTreat: FP7-224297 project

2017 – ... [Business or sector](#) Research and development
Research engineer
Siemens Industry Software România, Brasov
Nine, Bulevardul Gării 13A, Braşov 500227
plm.automation.siemens.com; antonya.csaba@siemens.com
Researcher and consultant

2007 – ... [Business or sector](#) Research and development
Ph.D. Advisor in Mechanical Engineering
Transilvania University of Brasov, Brasov
4 graduated Ph.D. students

[Business or sector](#) Research and education

EDUCATION AND TRAINING

1996–2002 **PhD**
Transilvania University of Brasov, Brasov
Research in Mechanical Engineering.
PhD thesis title: Dynamics transfer of the wheel's guiding mechanisms of passenger's car

1995–1996 **Master degreee**
Transilvania University of Brasov
Specialisation: Mechanical systems for power transmission

1990–1995 **Engineer**
Transilvania University of Brasov
Faculty of Mechanical Engineering, Specialisation: Automotive Engineering

PERSONAL SKILLS

Mother tongue(s) Hungarian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
Romanian	C2	C2	C2	C2	C2
English	C1	C1	C1	C1	C1
French	B1	B2	B1	B1	A2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

Digital skills Matlab / Simulink, MSC Adams, Catia, AutoCAD, MS Office, Solidworks, Simcenter AMESim, Simcenter 3D Motion, Python

Other skills

Specialisation:

Oct.-Nov. 1998, University of Gent, Belgium

Dec. 1999, Hochschule Bremen, Germany

February. and December. 2000 training in ADAMS (at Mechanical Dynamics Inc., Praga) and FlexTest (MTS System, Berlin).

May – June 2001, Technical University of Budapest, Hungary,

May 2002, University of Metz, France,

May – June 2004, Delft University of Technology, The Netherlands

Oct – Nov. 2005, Universidad La Coruna, Spain

Jan 2013, SZTAKI, Institute for Computer Science and Control, Budapest, Hungary

Sept-Oct. 2016, Jožef Stefan Institute, Ljubljana, Slovenia

ADDITIONAL INFORMATION

Scientific activity (entire career)

Published books: 3

Published papers in journals, national and international conferences and congresses: over 120

National and international research contracts: over 20

Research project co-ordinator: 3

Reviewer of papers in many journals, national and international conferences

Member in the scientific committees of international conferences (VIRMAN'08, EngOpt2012, InECCE 2011, ICCA 2019)

Industrial tutorial presentation at TMCE 2008

Teaching at foreign universities: 2002 University of Metz, France, 2009 Scuola Superiore Sant'Anna, Pisa, Italy.

Relevant research projects and publications:

International Research projects

A Configurable Virtual Reality System for Multi-Purpose Industrial Manufacturing Applications, Project IRMA, FP5: IRMA - NAS GRD3-2001-61804, Febr. 2002 – Febr. 2004, Position: Technical Director
Advanced Computer Aided Design of Ecological Products Tehnologies Integrating Green Energy Sources, Project ADEPT, GMA1-2002-72098, Nov. 2002 – Nov. 2005, Position: Member
Network of Excellence on Virtual Reality and Virtual Environments Applications for Future Workspaces, Network of excellence INTUITION, IST 507248-2/2004, Sept. 2004 – Sept. 2008, Position: Member

Virtual Reality in Product Design and Robotics - Project VEGA, WP 6, Project nr. 16565, May 2005 – May 2008, Position: Member of the Management Committee

ARTreat: Multi-level patient-specific artery and atherogenesis model for outcome prediction, decision support treatment, and virtual hand-on training, FP7-224297 – Large-scale Integrating Project(IP), sep. 2009 – aug. 2013, Position: Technical Director, project partner

National Research projects

Real time simulation of multibody systems with rigid and flexible elements, 2007, CNCSISA, Code 937, May 2007 – Nov. 2008, Position: Director

Virtual reality interface for linkage simulation using multibody theory - Project type AT, Code CNCSIS 170, January 2004 – Nov. 2005, Position: Director

INCOGNITO: Cognitive interaction of human - virtual environment for engineering applications, CNCSIS Exploratory research projects IDEI, nr. 608, 2008-2011, Position: Director

IREAL - Haptic interface for virtual prototyping in immersive environment CNCSIS Exploratory research projects IDEI 132/2007, 2007-2010, Position: Member

Relevant Publications

1. **Antonya, Cs.**, Talabă, D., Dynamic simulation of civil engineering structures in virtual reality environment, Multi-body Dynamics: Monitoring and Simulation Techniques III, Ed. Professional Engineering Publishing Ltd., pag. 137-145, 2004, ISBN 1-86058-463-2.

2. **Antonya, Cs.**, Talabă, D., Design evaluation of multibody systems in virtual environment, Advanced Summer Institute on product engineering, Ed. Universitatii Transilvania, pag. 217-222,

Brasov, 2004.

3. **Antonya, Cs.**, Virtual reality interface for simulation and visual evaluation of mechanisms, IX. International Conference on Theory of Machines and Mechanisms, pag 227-232, Liberec, Republica Cehă, 2004. ISBN 80-7083-847-7.
4. **Antonya, Cs.**, Talabă, D., Design evaluation of multibody systems in virtual environment, in Product engineering, eco-design technologies and green energies, Editura Springer, 2004, pag 311-320, ISBN 1-4020-2932-2
5. **Antonya, Cs.**, Butnaru, T., Talabă, D., Design and development of a wired haptic system for the interaction with virtual mechanical systems, Euromech Colloquium 476, Ferrol, Spania, 61-62, 2006.
6. **Antonya, Cs.**, Talabă, D., Design Evaluation and Modification in a Virtual Environment, Proceedings of the „1st International Virtual Manufacturing Workshop” (VirMan'06) Part of the IEEE Virtual Reality Conference 2006, Virginia, USA, pag. 18-26,
7. Talabă, D., **Antonya, Cs.**, Dynamics of articulated mechanical systems for simulation in virtual environments, Proceedings of TMCE 2006 (Tools and Methods of Competitive Engineering), Apr. 18-22, 2006, Ed. I. Horvath., J. Duhovnik, Vol. I, pag. 57-68, 2006. ISBN 961-6436-04-4
8. **Antonya, Cs.**, Simulation of mechanisms with virtual reality devices, A XIV-a Conferință Internațională de Inginerie Mecanică OGÉT 2006, Tg-Mures 27-30 apr. 2006, pag. 34-37, ISBN (10) 973-7840-10-0
9. **Antonya, Cs.**, Haptic feedback in mechanisms simulation, EGVE'06 12th Eurographics Symposium on Virtual Environments, 8th - 10th May 2006, Lisbon, Portugal (presentation at Invited Session by the Eg Consortium INTUITION)
10. **Antonya, Cs.**, Butnaru, T., Talaba, D., Haptic interaction with virtual mechanical systems, 12th IFToMM World Congress, Besançon (France), June 18-21, 2007
11. Rusak, Z., **Antonya, Cs.**, van der Vegte, W.; Horvath, I., Varga, E., A new approach to interactive grasping simulation of product concepts in a virtual reality environment, Proceedings of the ASME International Design Engineering Technical Conferences and Computers And Information in Engineering Conference, Pages: 213-221, Volume 2: 27th Computers and Information in Engineering Conference, Parts A and B ISBN: 0-7918-4803-5, doi:10.1115/DETC2007-35227
12. Rusák, Z., **Antonya, Cs.**, van der Vegte, W., Horvath, I., A study of real time simulation of grasping in user-product interaction, International Conference on Engineering Design, ICED'07, 28 - 31 August 2007, Paris, France. ISBN 1-904670-01-6 (book of abstracts), ISBN 1-904670-02-4 (Proceedings CD), J.-C. Bocquet (ed.) 2007
13. **Antonya, Cs.**, **Butnaru, T.**, Talaba D., Manipulation of Mechanisms in Virtual Environment, Product Engineering, Tools and Methods Based on Virtual Reality, Talaba, D., Amditis, A. (Eds.), 2008, Ed. Springer, ISBN: 978-1-4020-8199-6, pag. 461-472
14. **Antonya, Cs.**, Talabă, D. Design Evaluation and Modification in a Virtual Environment. Journal of Virtual Reality, vol. 11, nr. 4, October, 2007, pag. 275-285, Springer London, ISSN 13594338 (Print) 14349957 (Online), DOI 10.1007/s1005500700746
15. **Antonya, Cs.**, Rusak, Z., Pozna, C., Simulation of product's grasping, EngOpt 2008 - International Conference on Engineering Optimization, Rio de Janeiro, Brazilia, 01 - 05 Iunie 2008, ISBN 978-85-7650-152-7, (Herskovits, J.; Canelas, A.; Cortes, H.; Aroztegui, M. eds.), Published by E-papers Servicos Editoriais Ltda
16. Butnaru, T., **Antonya, Cs.**, Talaba D., A wired haptic system for multimodal VR interaction, Product Engineering, Tools and Methods Based on Virtual Reality, Talaba, D., Amditis, A. (Eds.), 2008, Ed. Springer, ISBN: 978-1-4020-8199-6, pag. 243-258
17. Erdelyi, H., **Antonya, Cs.**, Talaba, D., Haptic feedback generation for a car direction indicator switch, Product Engineering, Tools and Methods Based on Virtual Reality, Talaba, D., Amditis, A. (Eds.), 2008, Ed. Springer, ISBN: 978-1-4020-8199-6 pag. 259-274
18. Rusak, Z., **Antonya, Cs.**, van der Vegte W., Horváth, I., Implementing real time grasping simulation based on anthropometric data, Product Engineering, Tools and Methods Based on Virtual Reality, Talaba, D., Amditis, A. (Eds.), 2008, Ed. Springer, ISBN: 978-1-4020-8199-6, pag. 523-540
19. **Antonya, Cs.**, Grasping Simulation of Virtual Products Bulletin of the Transilvania University of Braşov, Vol. 15 (50), pag. 589-594, Series A, Special issue ISSN 1223-9631 Proceedings of the International Conference ROBOTICS '08 November 13-14, Braşov, Romania, Volume 2, Transilvania University Press, 2008
20. **Antonya, Cs.**, Rusak, Z., Hand-product interaction for shape evaluation, AfriCOMP 2009, 1st African Conference on Computational Mechanics – An International Conference, Sun City, South

Africa 7-11.01.2009, Ed. Malan, A.G., Nithiarasu, P, Oxtoby, O., Pag. 66, 2009.

21. **Antonya, Cs.**, Barbuceanu, F., Rusák, Z., Talaba, D., Butnariu, S., Erdélyi, H.: Obstacle avoidance in simulated environment using eye tracking technologies, Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, IDETC/CIE 2009, August 30-September 2, 2009, San Diego, California, USA, DETC2009-87149, pag 1-10, ISBN 978-0-7918-3856-3
22. Rusák, Z., **Antonya, Cs.**, Horvath, I., Talaba, D.: Comparing kinematic and dynamic hand models for interactive grasping simulation, Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, IDETC/CIE 2009, August 30-September 2, 2009, San Diego, California, USA, pag. 1-9, ISBN 978-0-7918-3856-3
25. **Antonya Cs.**, Carabulea L., Pauna C.: Predictive Actuation of a Driving Simulator. In: Burnete N., Varga B. (eds) Proceedings of the 4th International Congress of Automotive and Transport Engineering (AMMA 2018). Proceedings in Automotive Engineering. Springer, Cham, pp 128-135,
24. Rusák, Z., **Antonya, Cs.**, Horvath, I., Talaba, D.: The role of visual feedback in interactive grasping simulation, International Conference On Engineering Design, ICED'09, 24 - 27 august 2009, Stanford University, Stanford, CA, USA, ISBN 978-1-904670-16-2,
25. Rusak, Z., **Antonya Cs.**, Horvath, I., A new principle for controlling contact forces in interactive grasping simulation, In. Tools and Methods of Competitive Engineering, vol I, Proceeding of the 8th International Symposium Tools and Methods of Competitive Engineering TMCE 2010, Ancona Italy apr. 12-16, 2010, pag. 541-550 (Horvath, I, Mandorli, F., Rusak, Z. eds) ISBN 978-90-5155-060-3, Delft University of Tehnology
26. Bărbuceanu, F. G., **Antonya, Cs.**, Duguleana, M., Rusák, Z.: Attentive User Interface for Interaction within Virtual Reality Environments Based on Gaze Analysis, Human-Computer Interaction. Interaction Techniques and Environments, Springer Lecture Notes in Computer Science, 2011, Volume 6762/2011, 204-213, DOI: 10.1007/978-3-642-21605-3_23 (J.A. Jacko (Ed.): Human-Computer Interaction, Part II, HCII 2011, LNCS 6762, pp. 204–213, 2011), ISSN 0302-9743, ISBN 978-3-642-21604-6
27. **Antonya, Cs.**, Bărbuceanu, F. G., Rusák, Z.: Path generation in virtual reality environment based on gaze analysis, IEEE Catalog number: CFP11AFR-CDR, ISBN: 978-1-61284-991-1, ISSN 2153-0025, pag 1-4, IEEE Africon, 2011 - Livingstone, Zambia, DOI: 10.1109/AFRCON.2011.6072169
28. Rusák, Z., **Antonya, Cs.**, Horváth, I., Methodology for Controlling Contact Forces in Interactive Grasping Simulation, IJVR - International Journal of Virtual Reality Volume 10, Number 2 June 2011, pp.1-pp.10, IPI Press, ISSN 1081-1451.
29. **Antonya, Cs.**, Rusák, Z., Force feedback generation for string based haptic systems, Proceedings of 2011 World Congress on Engineering and Technology (CET2011), Oct. 28 - Nov. 2, 2011, Shanghai, pag 960-964, vol 6. part. 3, IEEE Catalog Number CFP 1148N-CDR, ISBN 978-1-61234-363-6, Print Version IEEE Catalog Number: CFP 1148N -PRT, ISBN: 978-1-61284-362-9.
30. **Antonya, Cs.**: INCOGNITO: Cognitive interaction between human and virtual environment for engineering applications, (2011) 2nd International Conference on Cognitive Infocommunications, CogInfoCom 2011; Budapest; 7 - 9 July 2011; Code 86513, ISBN: 978-145771806-9, art. no. 5999488
31. Talaba, D., **Antonya, Cs.**, Stavar, A., Georgescu, V.C., Virtual reality in product design and robotics, (2011) 2nd International Conference on Cognitive Infocommunications, CogInfoCom 2011; Budapest; 7 - 9 July 2011; Code 86513, ISBN: 978-145771806-9, art. no. 5999473
32. Toma, M.I., Gîrbacea, F., **Antonya, Cs.**: A comparative evaluation of human interaction for design and assembly of 3D CAD models in desktop and immersive environments, International Journal on Interactive Design and Manufacturing, Volume 6, Issue 3, pp 179-193, DOI: 10.1007/s12008-012-0144-1, 2012
33. **Antonya, Cs.**, Accuracy of Gaze Point Estimation in Immersive 3D Interaction Interface Based on Eye Tracking, IEEE 12th International Conference on Control, Automation, Robotics & Vision, Guangzhou, China, 5-7th December 2012 (ICARCV 2012), pag. 1125-1129, ISBN 978-1-4673-1872-3, 2012, DOI: 10.1109/ICARCV.2012.6485315
34. Talaba, D., **Antonya, Cs.**, Virtual prototyping of mechanical systems with tool mediated haptic feedback, Engineering with Computers, 30(4), pag. 569-582. DOI: 10.1007/s00366-012-0301-y, ISSN 0177-0667, 2014.
35. **Antonya, Cs.**, Force Feedback in String based Haptic Systems, Procedia Computer Science, Volume 25, 2013, Pages 90-97, ISSN 1877-0509, DOI: 10.1016/j.procs.2013.11.011.
36. **Antonya, Cs.**, Hybrid dynamic model for haptic systems with planar mechanisms, 6th IEEE Conference on Robotics, Automation and Mechatronics (RAM) Manila, Philippines, 2013, pag. 174 -

178, DOI: 10.1109/RAM.2013.6758579, ISSN: 2158-2181, ISBN: 978-1-4799-1198-1.

37. **Antonya, Cs.**, Butnariu, S., Pozna, C., Parameter computation of the hand model in virtual grasping, CogInfoCom 2014, 5th IEEE International Conference on Cognitive Infocommunications, November 5-7, 2014, Vietri sul Mare, Italy, pag. 173-177, ISBN 978-1-4799-7280-7, DOI: 10.1109/CogInfoCom.2014.7020440.

38. Butnariu, S., **Antonya, Cs.**: Correction method for spine flexion tracking with markers. 4th International Workshop on Medical and Service Robot, MESROB 2015, July 8-10, 2015, Nantes, France. New Trends in Medical and Service Robots (pp. 265-275). Springer International Publishing. DOI: 10.1007/978-3-319-30674-2_20, ISBN 978-3-319-30673-5

39. Boboc, R.G., Dumitru, A.I., **Antonya, Cs.**: Point-and-Command Paradigm for Interaction with Assistive Robots, International Journal of Advanced Robotic Systems, 2015, 12:75, pp. 1-13, ISSN 1729-8806, DOI: 10.5772/60582 (IF 0.526).

40. **Antonya, Cs.**, Butnariu, S., Beles, H.: Parameter Estimation from Motion Tracking Data, Springer, 2015 Digital Human Modeling. Applications in Health, Safety, Ergonomics and Risk Management: Ergonomics and Health, Springer Lecture Notes in Computer Science Volume 9185, 2015, pp. 113-121, DOI: 10.1007/978-3-319-21070-4_12, ISBN 978-3-319-21069-8.

41. **Antonya, Cs.**, Butnariu, S., Beles, H.: Geometric Identification of a Four-Bar Linkage from Noisy Tracking Data, Proceeding of The 14th IFToMM World Congress, Taipei, Taiwan, October 25-30, 2015, DOI Number: 10.6567/IFToMM.14TH.WC.OS2.012, ISBN 978-986-04-6098-8

42. Pozna, C., **Antonya, Cs.**: Issues about autonomous cars, 2016 IEEE 11th International Symposium on Applied Computational Intelligence and Informatics (SACI), pag.13-18. ISBN: 978-1-5090-2380-6 DOI: 10.1109/SACI.2016.7507360.

43. **Antonya, Cs.**, Butnariu, S., Gams, M.: Haptic Interface Design for Experiencing Ancient Works. Proceedings of the 19th International Multiconference INFORMATION SOCIETY – IS 2016 Volume F, pag. 16-19. 2016

44. **Antonya, Cs.**, Butnariu, S., Pozna, C.: Real-time representation of the human spine with absolute orientation sensors, The 14th International Conference on Control, Automation, Robotics and Vision, ICARCV 2016, November 13 –15, 2016, Phuket, Thailand, ISBN: 978-1-5090-3549-6, DOI: 10.1109/ICARCV.2016.7838745.

45. Tavčar, A., **Antonya, Cs.**, Butila, E. V.: Recommender System for Virtual Assistant Supported Museum Tours. Informatica, 40(3), pag. 279-284, 2016. ISSN 0350-5596

46. Tolea, B., Radu, A.I., Beles, H., **Antonya, Cs.**: Influence of the geometric parameters of the vehicle frontal profile on the pedestrian's head accelerations in case of accidents, International Journal of Automotive Technology, Vol.19, No.1, February, 2018, pp. 85–98 pISSN 1229–9138, DOI 10.1007/s12239–018–0009–0

47. **Antonya, Cs.**: Path Planning in Urban Area Using Local Features of the Road System, 2nd International Conference on Computational Modeling, Simulation and Applied Mathematics (CMSAM 2017), pp. 556-560, 2017, DEStech Transactions on Computer Science and Engineering. ISBN: 978-1-60595-499-8, ISSN: 2475-8841 DOI: 10.12783/dtsc/cmsam2017/16433.

48. **Antonya, Cs.**: Capturing Revolute Motion and Revolute Joint Parameters with Optical Tracking. In IOP Conference Series: Materials Science and Engineering (Vol. 281, No. 1, p. 012064). IOP Publishing, 2017. DOI:10.1088/1757-899X/281/1/012064, ISSN: 1757-8981

49. **Antonya Cs.**, Butnariu S., Pozna C. (2019) Haptic Device with Decoupled Motion for Rehabilitation and Training of the Upper Limb. In: Abraham A., Gandhi N., Pant M. (eds) Innovations in Bio-Inspired Computing and Applications. IBICA 2018. Advances in Intelligent Systems and Computing, vol 939. Springer, Cham, pp 413-422, DOI: 10.1007/978-3-030-16681-6_41, Print ISBN978-3-030-16680-9, Online ISBN978-3-030-16681-6

50. Butnariu S., **Antonya Cs.**, Ursu P. (2019) Medical Recovery System Based on Inertial Sensors. In: Abraham A., Gandhi N., Pant M. (eds) Innovations in Bio-Inspired Computing and Applications. IBICA 2018. Advances in Intelligent Systems and Computing, vol 939. Springer, Cham, pp 395-405, pp 395-405, DOI: 10.1007/978-3-030-16681-6_39, Print ISBN978-3-030-16680-9, Online ISBN978-3-030-16681-6

51. Irimia C., **Antonya Cs.**, Grovu M., Husar C. (2019) Dynamic Analysis of the Stewart Platform for the Motion System of a Driving Simulator. In: Uhl T. (eds) Advances in Mechanism and Machine Science. IFToMM WC 2019. Mechanisms and Machine Science, vol 73. Springer, Cham, pp 3079-3086, ISBN 978-3-030-20130-2, DOI: 10.1007/978-3-030-20131-9_303