Prehľad publikačnej činnosti a vedeckej aktivity

v zmysle vyhlášky č. 6/2005 Z.z., §1 (2)f a neskorších znení

Zoznam pôvodných publikovaných vedeckých prác a učebníc

Vedecké monografie

1. Takács, Gergely - Rohaľ-Ilkiv, Boris: Model Predictive Vibration Control : Efficient Constrained MPC Vibration Control for Lightly Damped Mechanical Structures. - 1st. ed. - London : Springer Verlag London, 2012. - 512 s. - ISBN 978-1-4471-2332-3 **(AAA)**

2. Takács, Gergely: Temperature Controlled Welding Simulation : Finite Element Analysis of a PID Controlled Temperature Constrained Arc Welding Process. - Saarbrücken : VDM Verlag Dr. Müller, 2010. - 113 s. - ISBN 978-3-639-29106-3 **(AAA)**

Vysokoškolské učebnice

3. Vachálek, Ján - Takács, Gergely: Robotika. - 1. vyd. - Bratislava : Nakladateľstvo STU, 2014. - 166 s., 96 obr., 2 tab. s. - ISBN 978-80-227-4163-7 **(ACB)**

4. Takács, Gergely - Vachálek, Ján - Rohaľ-Ilkiv, Boris: Identifikácia sústav. - 1. vyd. - Bratislava : Nakladateľstvo STU, 2014. - 270 s. - ISBN 978-80-227-4288-7 **(ACB) V tlači.**

Publikácie v karentovaných vedeckých časopisoch

7. Takács, Gergely - Rohaľ-Ilkiv, Boris: Model predictive control algorithms for active vibration control: a study on timing, performance and implementation properties. Journal of Vibration and Control, vol. 20 no. 13, s. 2061-2080, - ISSN 1077-5463 **(ADC)**

8. Takács, Gergely - Polóni, Tomáš - Rohaľ-Ilkiv, Boris: Adaptive Model Predictive Vibration Control of a Cantilever Beam with Real-Time Parameter Estimation. Shock and vibration [elektronický zdroj]. - ISSN 1070-9622. - Vol. 2014, Art. ID 741765, [15p], online **(ADC)**

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9. Takács, Gergely: Structural health monitoring and parameter estimation for thin active cantilever beams using low-cost microcontrollers. In: Archives of Acoustics. - ISSN 0137-5075. (2014) **(ADE). V recenzii.**

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11. Takács, Gergely - Polóni, Tomáš - Rohaľ-Ilkiv, Boris: Adaptive model predictive vibration control with state and parameter estimation using extended Kalman filtering. In: ICSV20 [elektronický zdroj] : Proceedings of the 20th International Congress on Sound and Vibration, Bangkok, Thailand, 7-11 July 2013. - Bangkok : International Institute of Acoustics and Vibration, 2013. - ISBN 978-616-551-682-2. - CD ROM, [8] p. **(AFA)**

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17. Takács, Gergely - Rohaľ-Ilkiv, Boris: High-speed video microscopy of the resonant modes of a smart beam. In: NOVEM 2012. Noise and vibration: Emerging Methods : proceedings of the conference. Sorrento /Italy/, 1.-4. 4. 2012. - Napoli : Universita degli Studi di Napoli "Federico II", 2012. - ISBN 9788890648403. - S. 078-1 - 078-12 **(AFC)**

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21. Takács, Gergely - Rohaľ-Ilkiv, Boris: Newton-Raphson based efficient model predictive control applied on active vibrating structures. In: European Control Conference 2009. ECC '09 : Budapest, Hungary, 23.-26.8.2009. - : EUCA, 2009. - ISBN 978-963-311-369-1. - S. 2845-2850 **(AFC)**

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25. Hulkó, Gabriel - Belavý, Cyril - Takács, Gergely - Zajíček, Peter: Control of technological and production processes modeled by COMSOL Multiphysics as Distributed Parameter Systems. In: COMSOL Conference 2010 : Proceedings. Bangalore /India/, October 29-30, 2010. - b.m. : COMSOL AB, 2010. - ISBN 978-0-9825697-5-7. - [7] **(AFC)**

26. Lauko, Martin - Seman, Pavol - Takács, Gergely - Rohaľ-Ilkiv, Boris: Control of laboratory model of pendubot. In: Process Control 2010 : 9th International Conference. Kouty nad Desnou, 7.-10. 6. 2010. - Pardubice : University of Pardubice, 2010. - ISBN 978-80-7399-951-3. - C043b-1 - C043b-10 **(AFC)**

27. Hulkó, Gabriel - Belavý, Cyril - Takács, Gergely - Buček, Pavol - Zajíček, Peter: Control of Distributed Parameter Systems - Engineering Methods and Software Support in the MATLAB & Simulink Programming Environment. In: MATLAB for Engineers - Applications in Control, Electrical Engineering, IT and Robotics. - Rijeka : Intech, Croatia, 2011. - ISBN 978-953-307-914-1. - S. 27-49 **(ABC)**

28. Takács, Gergely - Polóni, Tomáš - Rohaľ-Ilkiv, Boris - Šimončič, Peter - Honek, Marek - Kopačka, Matúš - Csambál, Jozef - Wojnar, Slawomir Stanislaw: Implementation of MPC techniques to real mechatronic systems. In: Selected Topics on Constrained and Nonlinear Control. Workbook. - Bratislava : STU v Bratislave, 2011. - ISBN 978-80-968627-3-3. - S. 171-224 **(ABD)**

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36. Takács, Gergely - Rohaľ-Ilkiv, Boris: Vibration control of a cantilever beam using piezoelectric feedback. In: Selected Topics on Constrained and Nonlinear Control. Preprints. - Bratislava : STU v Bratislave, 2011. - ISBN 978-80-968627-2-6. - S. 155-162 **(AED)**

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38. Lauko, Martin - Seman, Pavol - Takács, Gergely - Rohaľ-Ilkiv, Boris: Swing up and balancing control of pendubot system. In: Selected Topics on Constrained and Nonlinear Control. Preprints. - Bratislava : STU v Bratislave, 2011. - ISBN 978-80-968627-2-6. - S. 141-147 **(AED)**

39. Otčenáš, Jakub - Takács, Gergely - Rohaľ-Ilkiv, Boris: Real-time state and parameter estimation for vibration dynamics. In: Noise and Vibration in Practice. Hluk a kmitanie v praxi : peer-reviewed scientific proceedings. - Bratislava : Nakladateľstvo STU, 2014. - ISBN 978-80-227-4173-6. - S. 157-162 **(AED)**

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Constrained and Nonlinear Control. Preprints. - Bratislava : STU v Bratislave, 2011. - ISBN 978-80-968627-2-6. - S. 149-153 **(AED)**

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42. Takács, Gergely - Rohaľ-Ilkiv, Boris: Model predictive control in vibration attenuation. In: ERIN 2008. Education, Research, Innovation : 2. medzinárodná konferencia mladých výskumníkov a doktorandov. Bratislava, 23.-24.4. 2008. - Zborník abstraktov. - Bratislava : STU v Bratislave, 2008. - ISBN 978-80-227-2849-2. - nestr. **(AFD)**

43. Takács, Gergely - Otčenáš, Jakub - Rohaľ-Ilkiv, Boris: Semi-active countersurveillance measures for laser microphones. In: Noise and vibration in practice. Hluk a kmitanie v praxi. : Proceedings of the 18th international acoustic conference. Kočovce, Slovakia, June 3-4, 2013. - Bratislava : Nakladateľstvo STU, 2013. - ISBN 978-80-227-3946-7. - p. 147-154 **(AFD)**

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45. Hulkó, Gabriel - Belavý, Cyril - Takács, Gergely - Ondrejkovič, Karol - Zajíček, Peter - Koščo, Roland: Control of technological processes modelled by COMSOL Multiphysics as Distributed Parameter Systems. In: Mechanical Engineering 2010 : 13th international conference on the occasion of the 70th anniversary of the beginning of education of mechanical engineering students at the Slovak University of Technology in Bratislava. Bratislava, 21.10. 2010. Proceedings of the papers. - Bratislava : Slovak University of Technology in Bratislava, 2010. - ISBN 978-80-227-3304-5. - S2-28 - S2-42 **(AFD)**

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Prehľad riešených výskumných úloh

Zahraničné projekty

1. NIL-I-007, "Podpora NO-SK spolupráce v automatickom riadení" Nórsko-slovenský fond NIL na podporu spolupráce v oblasti vzdelávania (Enhancing NO-SK Cooperation in Automatic Control, ECAC)

2. FP7-PEOPLE-2013-ITN, 7 th Framework Programme for Research: "Training in Embedded Predictive Control and Optimization TEMPO" (FP7-PEOPLE-2013-ITN, Proposal: 607957)

Domáce projekty

3. APVV-0090-10 „Metódy prediktívneho riadenia s modelom a spoločný odhad stavu a parametrov pre rýchle nelineárne mechatronické systémy“

4. APVV-0280-06 „Prediktívne riadenie mechatronických systémov s rýchlou dynamikou a obmedzeniami“

5. APVV-0160-07 „Pokročilé metódy modelovania, riadenia a návrhu mechatronických systémov ako sústav so sústredeným vstupom a rozloženým výstupom“

6. APVV-0131-10 „High-tech riešenia pre technologické procesy a mechatronické komponenty ako riadené systémy s rozloženými parametrami“

7. ESF-13120200115, "Doctoral students for the modern industrial automation in Slovakia" (Doktorandi pre modernú priemyselnú automatizáciu v SR), Európsky sociálny fond (ESF-13120200115)

8. VEGA 1/0138/11: „Riadenie dynamických systémov reprezentovaných numerickými štruktúrami ako sústav s rozloženými parametrami“

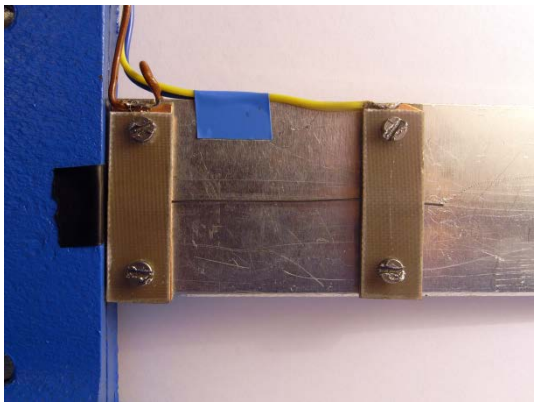
9. AKTVIB, Program na podporu mladých výskumníkov 2010, "Aktívne tlmenie vibrácií a nasadenie solárnych panelov cez výpočtovo efektívne prediktívne algoritmy". Vedúci projektu.

10. KATV-MTV, Program na podporu mladých výskumníkov 2011, "Kompozitné aktuátory na tlmenie vibrácií pomocou materiálov s tvarovou pamäťou", Vedúci projektu.

Prehľad technických diel

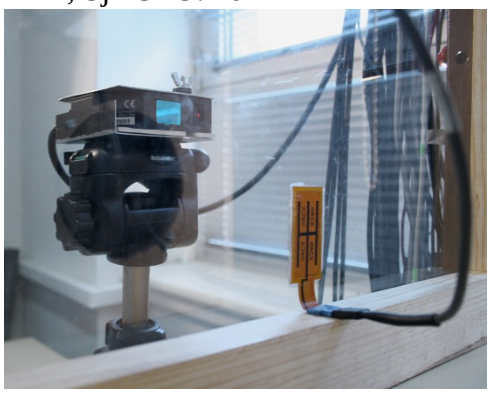
1. Experimentálna laboratórna zostava na aktívne tlmenie vibrácií pomocou piezokeramických prevodníkov. Laboratórium L2, ÚAMAI, SjF STU. 2006-2014

2. Experimentálna laboratórna zostava na aktívne tlmenie vibrácií pomocou materiálov s tvarovou pamäťou, akčný člen na využitie materiálov s tvarovou pamäťou. Laboratórium L2, ÚAMAI, SjF STU. 2010



3. Experimentálna laboratórna zostava na skúmanie aktívneho znižovania hluku v klimatizačných zariadeniach. Laboratórium L2, ÚAMAI, SjF STU. 2012

4. Experimentálna laboratórna zostava na skúmanie aktívneho blokovania optického zberu audiosignálov. Laboratórium L2, ÚAMAI, SjF STU. 2012

Prehľad preukázateľných citácií a ohlasov na vedecké práce

Citácie kategórie O1 (WoS, SCOPUS)

Citovaná publikácia: *Takács, Gergely - Rohaľ-Ilkiv, Boris: Model Predictive Vibration Control : Efficient Constrained MPC Vibration Control for Lightly Damped Mechanical Structures. - 1st. ed. - London : Springer Verlag London, 2012. - 512 s. - ISBN 978-1-4471-2332-3*

1. x2013 Bisadi, M. - Baharom, S.: A parametric study on natural frequency of skewed railway bridge. In: Australian Journal of Basic and Applied Sciences. - ISSN 1991-8178. - Vol. 7, no. 2 (2013), s. 33-36. **[o1]**

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3. x2013 Frankovský, Peter - Hroncová, Darina - Delyová, Ingrid - Virgala, Ivan: Modeling of Dynamic Systems in Simulation Environment MATLAB/Simulink ? SimMechanics. In: American Journal of Mechanical Engineering [elektronický zdroj]. - ISSN 2328-4110. - Vol. 1, No. 7. - , 2013, s. 282-288. **[o1]**

4. x2013 Jovanova, J. - Schirrer, A. - Kozek, M.: Multidisciplinary laboratory experiment for active vibration control with piezoelectric patches. In: IEEE EDUCON 2013 : Berlin, Germany, March 13-15, 2013. - [S.l.] : IEEE, 2013. - ISBN 978-1-4673-6110-1. - S. 1093-1097. **[o1]**

5. x2014 Sankin, J.N. - Juganova, N.A.: Nonlinear process of collision of workpiece with dropped parts of forging hammer. In: World Applied Sciences Journal. - ISSN 1818-4952. - Vol. 29, Iss. 12 (2014), s. 1626-1630. **[o1]**

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8. x2013 Harikrishnan, K. - Dhanaselvam, J.: An efficient electro mechanical coupling of parallel hybrid system using SCADA. In: International Journal of Scientific & Engineering Research. - ISSN 2229-5518. - Vol. 4, Iss. 5 (2013), s. 338-344. **[o3]**

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11. x2013 Bisadi, M. - Baharom, S.: Moving load analysis on skewed railway bridge. In: Journal of Asian Scientific Research. - ISSN 2226-5724. - Vol. 3, no. 2 (2013). **[o3]**

12. x2012 Frankovský, Peter - Hroncová, Darina - Delyová, Ingrid - Hudák, Peter: Inverse and forward dynamic analysis of two link manipulator. In: Procedia Engineering. - ISSN 1877-7058. - Vol. 48 : Modelling of Mechanical and Mechatronics Systems. 5th International Conference. Zemplínska Šírava, Slovakia, November 6- 8, 2012 (2012), s. 158-163 (v indexe Web of Science). **[o3]**

13. S. Monkronthong, N. M. White, N. R. Harris. Multiple-Level Digital Loudspeaker Array. Procedia Engineering. . – ISSN 1877-7058. – Vol. -, No. -, (2014), **[o3]**

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14. x2011 Pekar, Jaroslav - Stewart, G.E.: Using model predictive control to optimize variable trajectories and system control : Patent: US 20110301723 A1, Publication date: 8.12. 2011. - [S.l.] : USPTO, 2011. **[o3]**

15. x2013 Stewart, Gregory - Shahed, Syed.M. - Borrelli, Francesco - Hampson, Gregory J.: Pedial position and/or pedal change rate for use in control of an engine : Patent number: US RE44,452 E, Date of reissued patent: Aug.27, 2013. - [S.l.] : USPTO, 2013. - 5 p. s. **[o3]**

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Citovaná publikácia: *Takács, G.- Polóni, T. - Rohaľ-Ilkiv, B. - Šimončič, P. - Honek, M. - Kopačka, M. - Csambál, J. - Wojnar, S. S.: Implementation of MPC techniques to real mechatronic systems. In: Selected Topics on Constrained and Nonlinear Control. Workbook. - Bratislava : STU v Bratislave, 2011. - ISBN 978-80-968627-3-3. - S. 171-224*

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Prehľad prednášok a prednáškových pobytov doma a v zahraničí

Zahraničné pobyty

1. 2006, University of Oxford (Veľká Británia) – 40 dní

2. 2007, University of Oxford (Veľká Británia) – 61 dní

3. 2008, University of Oxford (Veľká Británia) – 67 dní

4. 2010, Norwegian University of Science and Technology (Nórsko) – 10 dní

Pozvané prednášky

1. Takács, Gergely - Polóni, Tomáš - Rohaľ-Ilkiv, Boris: Adaptive model predictive vibration control with state and parameter estimation using extended Kalman filtering. In: ICSV20 [elektronický zdroj] : Proceedings of the 20th International Congress on Sound and Vibration, Bangkok, Thailand, 7-11 July 2013. - Bangkok : International Institute of Acoustics and Vibration, 2013. - ISBN 978-616-551-682-2. - CD ROM, [8] p. **(AFA)**

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Ocenené prednášky a publikácie

1. Ocenenie za najlepšiu konferenčnú prednášku a najlepší článok, 7th Forum Acusticum 2014, Krakow, Poľsko, Európske Združenie Akustiky. Publikácia:
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2. Ocenenie za najlepšiu konferenčnú prednášku, COMSOL Conference 2010, Bangalore, India, COMSOL AB. Publikácia:
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V Bratislave dňa: 20. októbra 2014

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