

**A note on the relationship between single- and multi-experiment observability for discrete-time nonlinear control systems**  
Kaparin, Vadim; Kotta, Ülle; Shumsky, Alexey Ye.; Zhirabok, Alexey N. Proceedings of the Estonian Academy of Sciences 2011 / 3, p. 174-178

**A polynomial approach to a nonlinear model matching problem**

Belikov, Juri; Halas, Miroslav; Kotta, Ülle; Moog, Claude Proceedings of the Estonian Academy of Sciences 2016 / p. 330-344 : ill  
<https://doi.org/10.3176/proc.2016.4.02> [https://artiklid.elnet.ee/record=b2808634\\*est](https://artiklid.elnet.ee/record=b2808634*est)

**A transfer function approach to the realisation problem of nonlinear systems**

Halas, Miroslav; Kotta, Ülle International journal of control 2012 / p. 320-331

**Accessibility and orbits for discrete-time nonlinear control systems**

Bartosiewicz, Zbigniew; Kotta, Ülle; Wyrwas, Małgorzata 60th IEEE Conference on Decision and Control, CDC 2021, Austin, 13-17 December 2021 2021 / p. 4594-4601 <https://doi.org/10.1109/CDC45484.2021.9682853> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

**Accessibility and system reduction of nonlinear time-delay control systems**

Bartosiewicz, Zbigniew; Kaldmäe, Arvo; Kawano, Yu; Kotta, Ülle; Pawluszewicz, Ewa; Simha, Ashutosh; Wyrwas, Małgorzata IEEE Transactions on Automatic Control 2021 / p. 3781-3788 <https://doi.org/10.1109/TAC.2020.3028566> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Accessibility conditions of MIMO nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; Kotta, Ülle; Tönso, Maris; Wyrwas, Małgorzata Mathematical control and related fields 2016 / p. 217-250  
<https://doi.org/10.3934/mcrf.2016002>

**Accommodation to defects in the discrete dynamic systems**

Zhirabok, Alexey N.; Kotta, Ülle; Shumsky, A. E. Automation and remote control 2014 / p. 997-1009 : ill

**Accessibility conditions for discrete time nonlinear multiinput multioutput systems**

Kotta, Ülle; Tönso, Maris 5th Junior European Meeting on Control & Information Technology : September 20-22, 2006, Tallinn, Estonia : book of abstracts 2006 / p. 25

**Adaptive controller for networked control systems subjected to random communication delays**

Srinivasan, Seshadri; Saravanakumar, G.; Subathra, B.; Kotta, Ülle Soft computing applications : proceedings of the 7th International Workshop Soft Computing Applications (SOFA 2016). Vol. 1 2018 / p. 78-94 [https://doi.org/10.1007/978-3-319-62521-8\\_8](https://doi.org/10.1007/978-3-319-62521-8_8) [Conference proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

**Adaptive output feedback linearization for a class of NN-based ANARX models**

Petlenkov, Eduard; Nõmm, Sven; Kotta, Ülle 5th Junior European Meeting on Control & Information Technology : September 20-22, 2006, Tallinn, Estonia : book of abstracts 2006 / p. 10

**Adaptive output feedback linearization for a class of NN-based ANARX models**

Petlenkov, Eduard; Nõmm, Sven; Kotta, Ülle Proceedings of the 6th IEEE International Conference on Control and Automation : Guangzhou, China, May 30 - June 1, 2007 2007 / p. 3173-3178 <https://ieeexplore.ieee.org/document/4376947>

**Adjoint polynomial formulas for nonlinear state-space realization**

Belikov, Juri; Kotta, Ülle; Tönso, Maris IEEE transactions on automatic control 2014 / p. 256-261

**Advanced design of nonlinear discrete-time and delayed systems = Diskreetsete ja hilistumistega mittelineaarsete juhtimissüsteemide süntees**

Kaldmäe, Arvo 2016 <https://digi.lib.ttu.ee/?5215> [https://www.ester.ee/record=b4569894\\*est](https://www.ester.ee/record=b4569894*est)

**Algebraic approach for analysis and control of a water tank system**

Belikov, Juri; Kotta, Ülle; Tepljakov, Aleksei Information technology and control 2016 / p. 175-183 : ill  
<http://dx.doi.org/10.5755/j01.itc.45.2.13212>

**Algebraic formalism of differential one-forms for nonlinear control systems on time scales**

Bartosiewicz, Zbigniew; Kotta, Ülle; Pawluszewicz, Ewa; Wyrwas, Małgorzata Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2007 / 3, p. 264-282

**Algebraic formalism of differential p-forms and vector fields for nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; Kotta, Ülle; Pawluszewicz, Ewa; Tönso, Maris; Wyrwas, Małgorzata Proceedings of the Estonian Academy of Sciences 2013 / p. 215-226

**Any dynamical system is fully accessible through one single actuator and related problems**

Kawano, Yu; **Kotta, Ülle**; Moog, Claude International journal of robust and nonlinear control 2016 / p. 1748-1754  
<http://dx.doi.org/10.1002/rnc.3379>

**A brief tutorial overview of disturbance observers for nonlinear systems : application to flatness-based control**

**Kaldmäe, Arvo; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2020 / p. 57-73 : ill  
<https://doi.org/10.3176/proc.2020.1.07> [http://www.kirj.ee/33035/?tpl=1061&c\\_tpl=1064](http://www.kirj.ee/33035/?tpl=1061&c_tpl=1064) [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Challenges and perspectives in control of ionic polymer-metal composite (IPMC) actuators : a survey**

Aabloo, Alvo; **Belikov, Juri; Kaparin, Vadim; Kotta, Ülle** IEEE Access 2021 / art. 9133056, p. 121059-121073  
<https://doi.org/10.1109/ACCESS.2020.3007020> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Comments on 'A new kind of nonlinear disturbance observer for nonlinear systems with applications to cruise control of air-breathing hypersonic vehicles'**

**Kaldmäe, Arvo; Kotta, Ülle** International journal of control 2020 / p. 1725 <https://doi.org/10.1080/00207179.2018.1529436> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Comments on "PBH tests for nonlinear systems"**

Sarafrazi, Mohammad Amin; Bartosiewicz, Zbigniew; **Kotta, Ülle** Automatica 2020 / art. 108617  
<https://doi.org/10.1016/j.automatica.2019.108617> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Comparison of LPV and nonlinear system theory : a realization problem**

**Belikov, Juri; Kotta, Ülle; Tönso, Maris** Systems & control letters 2014 / p. 72-78

**Computer algebra tools for modelling, analysis and synthesis for nonlinear control systems = Arvutialgebra vahendid mittelineaarsete juhtimissüsteemide modelleerimiseks, analüüsiks ja sünteesiks**

**Tönso, Maris** 2010 [https://www.ester.ee/record=b2552427\\*est](https://www.ester.ee/record=b2552427*est)

**Construction of flat outputs of nonlinear discrete-time systems in a geometric and an algebraic framework**

Kolar, Bernd; **Kaldmäe, Arvo**; Schöberl, Markus; **Kotta, Ülle**; Schlacher, Kurt IFAC-PapersOnLine 2016 / p. 796-801  
<https://doi.org/10.1016/j.ifacol.2016.10.263>

**Controller and controllability canonical forms for discrete-time nonlinear systems**

**Kotta, Ülle** Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2005 / 1, p. 55-62

**Decomposition of discrete-time nonlinear control systems**

**Kotta, Ülle** Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2005 / 3, p. 154-161

**Degree of Dieudonné determinant defines the order of nonlinear system**

**Kotta, Ülle; Belikov, Juri**; Halas, Miroslav; **Leibak, Alar** International journal of control 2019 / p. 518-527  
<https://doi.org/10.1080/00207179.2017.1361042> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Discrete-time linear-analytic system linearization and decoupling via application of right inverse system**

**Kotta, Ülle** Eesti NSV Teaduste Akadeemia toimetised. Füüsika. Matemaatika = Известия Академии наук Эстонской ССР. Физика. Математика = Proceedings of Academy of Sciences of the Estonian SSR. Physics. Mathematics 1988 / lk. 257-262  
[https://www.ester.ee/record=b1264310\\*est](https://www.ester.ee/record=b1264310*est)

**Disturbance decoupling by measurement feedback : sensor location**

**Kaldmäe, Arvo; Kotta, Ülle**; Shumsky, Alexey; Zhirabok, Alexey Proceedings of the Estonian Academy of Sciences 2016 / p. 317-329 : ill <http://dx.doi.org/10.3176/proc.2016.4.05> [https://artiklid.elnet.ee/record=b2808632\\*est](https://artiklid.elnet.ee/record=b2808632*est)

**Disturbance decoupling in nonlinear hybrid systems**

**Kaldmäe, Arvo; Kotta, Ülle**; Shumsky, Alexey; Zhirabok, Alexey Nonlinear analysis : hybrid systems 2018 / p. 42-53  
<https://doi.org/10.1016/j.nahs.2017.11.001> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Disturbance decoupling in nonlinear hybrid systems [Electronic resource]**

**Kaldmäe, Arvo; Kotta, Ülle**; Shumsky, Alexey; Zhirabok, Alexey 12th IEEE International Conference on Control and Automation : ICCA 2016 : Kathmandu, Nepal, 1-3 June 2016 2016 / p. 86-91 : ill. [USB] <https://doi.org/10.1109/ICCA.2016.7505257>

**Disturbance decoupling of multi-input multi-output discrete-time nonlinear systems by static measurement feedback**

**Kaldmäe, Arvo; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2012 / p. 77-88  
[https://artiklid.elnet.ee/record=b2497319\\*est](https://artiklid.elnet.ee/record=b2497319*est)

**Disturbance decoupling problem in finite automata : sensor location problem**

**Kaldmäe, Arvo; Kotta, Ülle**; Shumsky, Alexey; Zhirabok, Alexey 2016 IEEE Conference on Control Applications (CCA) : part of 2016 IEEE Multi-Conference on Systems and Control, September 19-22, 2016, Buenos Aires, Argentina 2016 / p. 481-486 : ill

**Eesti Vabariigi 2018. aasta teaduspreemia laureaadiid TTÜst**

**Vähi, Kersti; Buldas, Ahto; Kotta, Ülle; Kurnitski, Jarek; Raudla, Ringa** Mente et Manu 2018 / lk. 26-27 : portr

[https://www.ttu.ee/ttu-uudised/ajaleht-mente-et-manu/](https://www.ttu.ee/ttu-uudised/ajaleht-mente-et-manu/mente-et-manu/) [http://www.ester.ee/record=b1242496\\*est](http://www.ester.ee/record=b1242496*est)

**Equivalence of linear control systems on time scales**

**Bartosiewicz, Zbigniew; Kotta, Ülle; Pawluszewicz, Ewa** Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2006 / 1, p. 43-52

**Equivalence of realizability conditions for nonlinear control systems**

**Kotta, Ülle; Mullari, Tanel** Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2006 / 1, p. 24-42

**Erratum : Linearization of discrete-time control system by state transformation**

**Mullari, Tanel; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2021 / p. 307 <https://doi.org/10.3176/proc.2021.1.09>

[https://kirj.ee/wp-content/plugins/kirj/pub/Erratum-proc-3-2021-307\\_20210822154030.pdf](https://kirj.ee/wp-content/plugins/kirj/pub/Erratum-proc-3-2021-307_20210822154030.pdf)

**Event-based control for differentially flat systems: application to autonomous underwater vehicle**

**Kaldmäe, Arvo; Kotta, Ülle; Meurer, Christian; Simha, Ashutosh** IFAC-PapersOnLine 2019 / p. 180-185

<https://doi.org/10.1016/j.ifacol.2019.11.775> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

**Experimental validation of the Newton observer for a nonlinear flux-controlled AMB system operated with zero-bias flux**

**Mystkowski, Arkadiusz; Kierdelewicz, A.; Kotta, Ülle; Kaparin, Vadim** International journal of control 2020 / p. 2257-2266 : ill

<https://doi.org/10.1080/00207179.2018.1552025> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Extended observer form : simple existence conditions**

**Kaparin, Vadim; Kotta, Ülle; Mullari, Tanel** International journal of control 2013 / p. 794-803 : ill

**Faulty plant reconfiguration based on disturbance decoupling methods**

**Kaldmäe, Arvo; Kotta, Ülle; Jiang, Bin; Shumsky, Alexey Ye.; Zhirabok, Alexey N.** Asian journal of control 2016 / p. 858-867 : ill

<http://dx.doi.org/10.1002/asjc.1185>

**Feedback linearization and lattice theory**

**Kotta, Ülle; Tönso, Maris; Shumsky, Alexey Ye.; Zhirabok, Alexey N.** Systems & control letters 2013 / p. 248-255

**Feedback linearization of an active magnetic bearing system operated with a zero-bias flux**

**Mystkowski, Arkadiusz; Kaparin, Vadim; Kotta, Ülle; Pawluszewicz, Ewa; Tönso, Maris** International journal of applied mathematics and computer science 2017 / p. 539-548 : ill <https://doi.org/10.1515/amcs-2017-0038>

**Feedback linearization of discrete-time nonlinear control systems : computational aspects**

**Mullari, Tanel; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2020 / p. 11-26 <https://doi.org/10.3176/proc.2020.1.03>

[http://kirj.ee/32996/?tpl=1061&c\\_tpl=1064](http://kirj.ee/32996/?tpl=1061&c_tpl=1064) [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Feedback linearization of possibly non-smooth systems**

**Kaldmäe, Arvo; Kotta, Ülle; Shumsky, Alexey; Zhirabok, Alexey** Proceedings of the Estonian Academy of Sciences 2017 / p. 109-

123 <https://doi.org/10.3176/proc.2017.2.01> [http://www.ester.ee/record=b2355998\\*est](http://www.ester.ee/record=b2355998*est)

**Finite determination of accessibility and singular points of nonlinear systems: an algebraic approach**

**Sarafrazi, Mohammad Amin; Kotta, Ülle; Bartosiewicz, Zbigniew** Systems & control letters 2020 / art. 104600, p. 1-7

<https://doi.org/10.1016/j.sysconle.2019.104600> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**A flapped paddle-fin for improving underwater propulsive efficiency of oscillatory actuation**

**Simha, Ashutosh; Gkliva, Roza; Kotta, Ülle; Kruusmaa, Maarja** IEEE robotics and automation letters 2020 / p. 3176-3181

<https://doi.org/10.1109/LRA.2020.2975747> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Flatness based control of a HVAC system**

**Kaldmäe, Arvo; Kotta, Ülle** Information technology and control 2017 / p. 499-507 : ill <http://dx.doi.org/10.5755/j01.itc.46.4.17697>

**FLHex: a flapped-paddle hexapod for all-terrain amphibious locomotion**

**Burzynski, Piotr; Simha, Ashutosh; Kotta, Ülle; Pawluszewicz, Ewa; Sastry, Shivakumar** Bulletin of the Polish Academy of Sciences

Technical Sciences 2021 / art. e139007, 9 p. : ill <https://doi.org/10.24425/bpasts.2021.139007> [Journal metrics at Scopus](#) [Article at](#)

[Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Forward and backward shifts of vector fields : towards the dual algebraic framework**

**Mullari, Tanel; Kotta, Ülle; Bartosiewicz, Zbigniew; Pawluszewicz, Ewa; Moog, Claude** IEEE transactions on automatic control 2017

/ p. 3029-3033 <https://doi.org/10.1109/TAC.2016.2608718>

### Functions' algebra in nonlinear control : computational aspects and software

**Belikov, Juri; Kaldmäe, Arvo; Kaparin, Vadim; Kotta, Ülle;** Shumsky, Alexey Ye.; **Tõnso, Maris;** Zhirabok, Alexey Proceedings of the Estonian Academy of Sciences 2017 / p. 89-107 <https://doi.org/10.3176/proc.2017.1.06> [http://www.ester.ee/record=b2355998\\*est](http://www.ester.ee/record=b2355998*est)

### A geometric approach to position tracking control of a nonholonomic planar rigid body : case study of an underwater vehicle

**Simha, Ashutosh; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2020 / p. 215-227 : ill

<https://doi.org/10.3176/proc.2020.3.05> [https://kirj.ee/public/proceedings\\_pdf/2020/issue\\_3/proc-2020-3-215-227.pdf](https://kirj.ee/public/proceedings_pdf/2020/issue_3/proc-2020-3-215-227.pdf) [Journal metrics at Scopus](#)  
[Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Global linearization approach to nonlinear control systems : a brief tutorial overview

**Belikov, Juri; Kaldmäe, Arvo; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2017 / p. 243-263

<https://doi.org/10.3176/proc.2017.3.01> [http://www.ester.ee/record=b2355998\\*est](http://www.ester.ee/record=b2355998*est)

### Infoleht / [TTÜ] Küberneetika Instituut

**Penjam, Jaan; Kotta, Ülle; Kutser, Mati; Lemba, Maris; Tamm, Marje** 2001

### Input-output decoupling of discrete-time nonlinear systems by dynamic measurement feedback

**Kaldmäe, Arvo; Kotta, Ülle** European journal of control 2017 / p. 31-38 : ill <https://doi.org/10.1016/j.ejcon.2016.12.004>

### Input-output linearization of discrete-time systems by dynamic output feedback

**Kaldmäe, Arvo; Kotta, Ülle** European journal of control 2014 / p. 73-78

### Institute of Cybernetics at TTU : activity report 1997-1999

**Kotta, Ülle** 2000

### Institute of Cybernetics at TUT : activity report 2000-2003

2004 [https://www.ester.ee/record=b1928118\\*est](https://www.ester.ee/record=b1928118*est)

### Intrinsic conditions for extended observer forms for nonlinear systems

**Simha, Ashutosh;** Respondek, Witold; **Kaldmäe, Arvo; Kaparin, Vadim; Kotta, Ülle** 2018 IEEE Conference on Decision and Control (CDC), 17-19 Dec. 2018, 17-19 Dec. 2018 : proceedings 2018 / p. 1373-1378 <https://doi.org/10.1109/CDC.2018.8619122>

[Conference Proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

### Kahe doktorikraadi omanik Sven Nõmm : [intervjuu TTÜ ja Nantes'i Ülikooli doktoriga]

**Nõmm, Sven; Kotta, Ülle** Tallinna Tehnikaülikooli aastaraamat 2004 2005 / lk. 123-124

### Learning based personalized energy management systems for residential buildings

**Soudari, Mallikarjun; Srinivasan, Seshadhri; Balasubramanian, Subathra; Vain, Jüri; Kotta, Ülle** Energy and buildings 2016 / p. 953-968 : ill <http://dx.doi.org/10.1016/j.enbuild.2016.05.059>

### Lineaarse mitmedimensionaalse dünaamilise süsteemi identifitseerimine sisend-väljundandmete põhjal

**Kotta, Ülle** 350 aastat matemaatikat Tartu Ülikoolis = 350 лет математики в Тартуском университете : ettekannete teesid 1982 / lk. 82-85 [https://www.ester.ee/record=b1255795\\*est](https://www.ester.ee/record=b1255795*est)

### A linear filtering framework for nonlinear systems based on extended output injection

**Simha, Ashutosh; Kotta, Ülle** IFAC-PapersOnLine 2019 / p. 274-279 <https://doi.org/10.1016/j.ifacol.2019.11.791> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

### Linearization by generalized input-output injections on homogeneous time scales

**Ciulkin, Monika; Pawluszewicz, Ewa; Kaparin, Vadim; Kotta, Ülle** 2016 21st International Conference on Methods and Models in Automation and Robotics (MMAR 2016) : Miedzyzdroje, Poland, 29 August - 1 September 2016 2016 / p. 48-53

<https://doi.org/10.1109/MMAR.2016.7575086>

### Linearization by input-output injections on homogeneous time scales

**Ciulkin, Monika; Kaparin, Vadim; Kotta, Ülle;** Pawluszewicz, Ewa Proceedings of the Estonian Academy of Sciences 2014 / p. 387-397 [https://artiklid.elnet.ee/record=b2707375\\*est](https://artiklid.elnet.ee/record=b2707375*est)

### Linearization of discrete-time control system by state transformation

**Mullari, Tanel; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2021 / p. 62-79 <https://doi.org/10.3176/proc.2021.1.09>  
[https://kirj.ee/wp-content/plugins/kirj/pub/proc-1-2021-62-79\\_20210630094644.pdf?v=a57b8491d1d8](https://kirj.ee/wp-content/plugins/kirj/pub/proc-1-2021-62-79_20210630094644.pdf?v=a57b8491d1d8) [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Measurement feedback disturbance decoupling in discrete-event systems

**Kaldmäe, Arvo; Kotta, Ülle;** Shumsky, Alexey; Zhirabok, Alexey International journal of robust and nonlinear control 2015 / p. 3330-3348 <http://dx.doi.org/10.1002/rnc.3265>

### **Measurement feedback disturbance decoupling in discrete-time nonlinear systems**

**Kaldmäe, Arvo; Kotta, Ülle;** Shumsky, Alexey Ye.; Zhirabok, Alexey N. Automatica 2013 / p. 2887-2891 : ill

### **Minimal realizations of nonlinear systems**

**Kotta, Ülle;** Moog, Claude; **Tönso, Maris** Automatica 2018 / p. 207-212 <https://doi.org/10.1016/j.automata.2018.05.007> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Minimal realizations of nonlinear time-delay systems**

**Kaldmäe, Arvo;** Zbigniew, Bartosiewicz; **Kotta, Ülle;** Wyrwas, Malgorzata IEEE transactions on automatic control 2023 / 7 p <https://doi.org/10.1109/TAC.2023.3240124>

### **Mittelinearsed juhtimissüsteemid**

**Kotta, Ülle** Aastaraamat 2018 / Eesti Matemaatika Selts 2022 / lk. 9-21 <https://matemaatika.eu/aastaraamatud/aastaraamat-2018/>

### **Model matching problem for discrete-time nonlinear systems**

**Belikov, Juri;** Halas, Miroslav; **Kotta, Ülle;** Moog, Claude Proceedings of the Estonian Academy of Sciences 2015 / p. 457-472 : ill [https://artiklid.elnet.ee/record=b2750720\\*est](https://artiklid.elnet.ee/record=b2750720*est)

### **Nabla derivatives associated with nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; **Kotta, Ülle;** **Mullari, Tanel;** **Tönso, Maris;** Pawluszewicz, Ewa; Wyrwas, Małgorzata Nonlinear analysis : modelling and control 2016 / p. 547-563 <http://dx.doi.org/10.15388/NA.2016.4.8>

### **Neural networks based ANARX structure for identification and model based control**

**Petlenkov, Eduard;** **Nõmm, Sven;** **Kotta, Ülle** 9th International Conference on Control, Automation, Robotics and Vision : 5-8 December, 2006, Singapore : [proceedings] 2006 / p. 2284-2288 <https://ieeexplore.ieee.org/document/4150221>

### **Newton observer for a nonlinear flux-controlled AMB system**

Mystkowski, Arkadiusz; **Kotta, Ülle;** **Kaparin, Vadim** Proceedings of the Estonian Academy of Sciences 2018 / p. 61-72 : ill <https://doi.org/10.3176/proc.2018.1.03> [http://www.ester.ee/record=b2355998\\*est](http://www.ester.ee/record=b2355998*est) [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **NLControl - a mathematica package for nonlinear control systems**

**Kotta, Ülle;** **Tönso, Maris** IFAC-PapersOnLine 2017 / p. 681-686 <https://doi.org/10.1016/j.ifacol.2017.08.122>

### **Non-commutative determinants in nonlinear control theory : preliminary ideas**

**Kotta, Ülle;** **Leibak, Alar;** Halas, Miroslav ICARCV 2008 : 10th International Conference on Control, Automation, Robotics & Vision : 17-20 December 2008, Hanoi, Vietnam 2008 / p. 815-820

### **Nonlinear orientation controller for a compliant robotic fish based on asymmetric actuation**

**Meurer, Christian;** **Simha, Ashutosh;** **Kotta, Ülle;** **Kruusmaa, Maarja** 2019 International Conference on Robotics and Automation : ICRA 2019, Palais des Congres de Montreal, Canada, 20-24 May, 2019 2019 / Art. 8793892 ; p. 4688-4694 <https://doi.org/10.1109/ICRA.2019.8793892> [Conference proceeding at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

### **Observable space of the nonlinear control system on a homogeneous time scale**

**Kaparin, Vadim;** **Kotta, Ülle;** Wyrwas, Małgorzata Proceedings of the Estonian Academy of Sciences 2014 / p. 11-25 [https://artiklid.elnet.ee/record=b2665198\\*est](https://artiklid.elnet.ee/record=b2665198*est)

### **Observer-based residual generation for nonlinear discrete-time systems**

**Kaldmäe, Arvo;** **Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2018 / p. 325-336 [http://www.kirj.ee/public/proceedings\\_pdf/2018/issue\\_4/proc-2018-4-325-336.pdf](http://www.kirj.ee/public/proceedings_pdf/2018/issue_4/proc-2018-4-325-336.pdf) <https://doi.org/10.3176/proc.2018.4.01> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **On accessibility conditions for state space nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; **Kotta, Ülle;** **Mullari, Tanel;** **Tönso, Maris;** Wyrwas, Małgorzata Systems & control letters 2016 / p. 8-13 <http://dx.doi.org/10.1016/j.sysconle.2016.09.018>

### **On integrability of observable space for discrete-time polynomial control systems**

Kawano, Yu; **Kotta, Ülle** IEEE transactions on automatic control 2015 / p. 1987-1991 <http://dx.doi.org/10.1109/TAC.2014.2365685>

### **On submersivity assumption for nonlinear control systems on homogeneous time scales**

**Kotta, Ülle;** Rehák, Branislav; Wyrwas, Małgorzata Proceedings of the Estonian Academy of Sciences 2011 / 1, 25-37

### **On the differentiation of a composite function with a generalized vector argument on homogeneous time scales**

**Kaparin, Vadim; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2017 / p. 309-322 : tab  
<https://doi.org/10.3176/proc.2017.3.04> [http://www.estser.ee/record=b2355998\\*est](http://www.estser.ee/record=b2355998*est)

**On the finiteness of accessibility test for nonlinear discrete-time systems**

Sarafrazi, Mohammad Amin; Pawluszewicz, Ewa; Bartosiewicz, Zbigniew; **Kotta, Ülle** International journal of control 2021 / p. 2330-2336 <https://doi.org/10.1080/00207179.2019.1706102> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**On the properties of forward and backward shifts of vector fields**

**Kaldmäe, Arvo; Kaparin, Vadim; Kotta, Ülle; Mullari, Tanel;** Pawluszewicz, Ewa Proceedings of the Estonian Academy of Sciences 2022 / p. 314-325 <https://doi.org/10.3176/proc.2022.4.02> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**On the stopping criteria in nonlinear unknown input observability condition**

Sarafrazi, Mohammad Amin; **Kotta, Ülle;** Bartosiewicz, Zbigniew IEEE transactions on automatic control 2022 / p. 4733-4737  
<https://doi.org/10.1109/TAC.2022.3160133> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**On the transformation of a nonlinear discrete-time input-output system into the strong row-reduced form**

Bartosiewicz, Zbigniew; **Belikov, Juri; Kotta, Ülle; Tönso, Maris; Wyrwas, Małgorzata** Proceedings of the Estonian Academy of Sciences 2016 / p. 220-236 <http://dx.doi.org/10.3176/proc.2016.3.02> [https://artiklid.elnet.ee/record=b2798394\\*est](https://artiklid.elnet.ee/record=b2798394*est)

**Polynomial accessibility condition for the multi-input multi-output nonlinear control system**

**Kotta, Ülle; Tönso, Maris;** Kawano, Yu Proceedings of the Estonian Academy of Sciences 2014 / p. 136-150  
[https://artiklid.elnet.ee/record=b2673962\\*est](https://artiklid.elnet.ee/record=b2673962*est)

**Popov form and the explicit equations of inverse systems**

Bartosiewicz, Zbigniew; **Kotta, Ülle;** Pawluszewicz, Ewa; Tönso, Maris; Wyrwas, Małgorzata Proceedings of the Estonian Academy of Sciences 2018 / p. 432-355 : ill [http://www.kirj.ee/public/proceedings\\_pdf/2018/issue\\_4/proc-2018-4-342-355.pdf](http://www.kirj.ee/public/proceedings_pdf/2018/issue_4/proc-2018-4-342-355.pdf)  
<https://doi.org/10.3176/proc.2018.4.04> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Predictive smart thermostat controller for heating, ventilation, and air-conditioning systems**

Soudari, Mallikarjun; **Kaparin, Vadim;** Srinivasan, Seshadhri; Seshadhri, Subathra; **Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2018 / p. 291-299 : ill [http://www.kirj.ee/public/proceedings\\_pdf/2018/issue\\_3/proc-2018-3-291-299.pdf](http://www.kirj.ee/public/proceedings_pdf/2018/issue_3/proc-2018-3-291-299.pdf)  
<https://doi.org/10.3176/proc.2018.3.11> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Realisation of linear time-varying systems**

**Kotta, Ülle; Tönso, Maris** International journal of control 2017 / p. 1951-1956 <https://doi.org/10.1080/00207179.2016.1230891>

**Realizability of bilinear input-output differential equations in the classical [i.e. classical] state-space form**

**Kotta, Ülle; Mullari, Tanel; Kotta, Palle;** Zinober, Alan 5th Junior European Meeting on Control & Information Technology : September 20-22, 2006, Tallinn, Estonia : book of abstracts 2006 / p. 18

**Realization of discrete-time nonlinear input-output equations : polynomial approach**

**Kotta, Ülle; Tönso, Maris** Automatica 2012 / p. 255-262 <https://www.sciencedirect.com/science/article/pii/S0005109811005413>

**Realization of nonlinear input-output equations in controller canonical form**

**Kaldmäe, Arvo; Kotta, Ülle** Kybernetika 2018 / p. 736-747 <https://doi.org/10.14736/kyb-2018-4-0736> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Realization of nonlinear input-output equations using polynomial approach : preliminary ideas**

**Kotta, Ülle; Tönso, Maris** Info- ja kommunikatsioonitehnoloogia doktorikooli IKTDK kolmanda aastakonverentsi artiklite kogumik : 25.-26. aprill 2008, Voore külalistemaja 2008 / p. 21-24

**Realization of nonlinear MIMO system on homogeneous time scales**

**Belikov, Juri; Kotta, Ülle; Tönso, Maris** European journal of control 2015 / p. 48-54 <http://dx.doi.org/10.1016/j.ejcon.2015.01.006>

**Realization of nonlinear time-delay input-output equations**

**Kaldmäe, Arvo; Kotta, Ülle; Tönso, Maris** IEEE Control Systems Letters 2018 / p. 369-374  
<https://doi.org/10.1109/LCSYS.2018.2838456> [Journal metrics at Scopus](#) [Article at Scopus](#)

**Realization of time-delay systems**

**Kaldmäe, Arvo; Kotta, Ülle** Automatica 2018 / p. 317-320 <https://doi.org/10.1016/j.automatica.2018.01.001> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Realizations in feedforward forms of nonlinear input-output equations with time-delays**

**Kaldmäe, Arvo;** Kawano, Yu; **Kotta, Ülle** International journal of robust and nonlinear control 2020 / p. 7560-7573

### **Relaxing realizability conditions for discrete-time nonlinear systems**

**Kotta, Ülle**; Schlahter, Kurt; **Tõnso, Maris** Automatica 2015 / p. 67-71 <http://dx.doi.org/10.1016/j.automat.2015.05.007>

### **Remarks on the realization of time-varying systems**

**Kotta, Ülle**; Moog, Claude; **Tõnso, Maris** Proceedings of the Estonian Academy of Sciences 2018 / p. 208-216 [http://www.kirj.ee/public/proceedings\\_pdf/2018/issue\\_3/proc-2018-3-207-216.pdf](http://www.kirj.ee/public/proceedings_pdf/2018/issue_3/proc-2018-3-207-216.pdf) <https://doi.org/10.3176/proc.2018.3.02> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Removing the input derivatives in the generalized bilinear state equations**

**Mullari, Tanel**; **Kotta, Ülle**; **Kotta, Palle**; **Tõnso, Maris**; Zinober, Alan Proceedings of the Estonian Academy of Sciences 2009 / 2, p. 98-107 <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=b053956e3600449843044b1022ebefc6d5d19df8>

### **Silmad kinni ja näpud püsti! Kellest saab doktorant? : [kavandatavaid seadusemuudatusi õppetoetuste ja õppelaenu osas kommenteerivad TTÜ kõnetehnoloogia doktorant Tanel Alumäe, infotehnoloogia doktorant Juhan-Peep Ernits ja Küberneetikainstituudi vanemteadur Ülle Kotta]**

Lill, Anne; **Alumäe, Tanel**; **Ernits, Juhan-Peep**; **Kotta, Ülle** Linnaleht 2004 / 3. dets., lk. A 7

### **Single-experiment observability decomposition of discrete-time analytic systems**

Kawano, Yu; **Kotta, Ülle** Systems & control letters 2016 / p. 193-199 <http://dx.doi.org/10.1016/j.sysconle.2016.09.016>

### **State estimation and control for small low-cost autonomous underwater vehicles = Meetodid olekute hindamiseks ja juhtimiseks soodsa hinnaga autonoomsetele allveerobotitele**

**Meurer, Christian** 2021 [https://www.ester.ee/record=b5435482\\*est](https://www.ester.ee/record=b5435482*est) <https://digikogu.taltech.ee/et/Item/717111f2-51e3-4176-b0b8-b369064b26a2> <https://doi.org/10.23658/taltech.27/2021>

### **State feedback linearization of nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; **Belikov, Juri**; **Kotta, Ülle**; Wyrwas, Małgorzata Nonlinear analysis: hybrid systems 2019 / p. 69-85 <https://doi.org/10.1016/j.nahs.2018.08.002> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **State-space realization of nonlinear control systems : unification and extension via pseudo-linear algebra**

**Belikov, Juri**; **Kotta, Ülle**; **Tõnso, Maris** Kybernetika 2012 / p. 1100-1113 [https://www.researchgate.net/publication/269024076\\_State-space\\_realization\\_of\\_nonlinear\\_control\\_systems\\_Unification\\_and\\_extension\\_via\\_pseudo-linear\\_algebra](https://www.researchgate.net/publication/269024076_State-space_realization_of_nonlinear_control_systems_Unification_and_extension_via_pseudo-linear_algebra)

### **Static state feedback linearizability : relationship between two methods**

**Mullari, Tanel**; **Kotta, Ülle**; **Tõnso, Maris** Proceedings of the Estonian Academy of Sciences 2011 / 2, p. 121-135 [https://artiklid.elnet.ee/record=b2413961\\*est](https://artiklid.elnet.ee/record=b2413961*est)

### **Static state feedback linearization of nonlinear control systems on homogeneous time scales**

Bartosiewicz, Zbigniew; **Kotta, Ülle**; **Tõnso, Maris**; Wyrwas, Małgorzata Mathematics of control, signals, and systems 2015 / p. 523-550 <http://dx.doi.org/10.1007/s00498-015-0150-5>

### **Teadlane peab julgema eksida : [Ülle Kotta : TTÜ küberneetika instituudi teadur, kes 1996. aastal pälvis pika teadurikarjääri tunnustusena Eesti Vabariigi teaduspreemia]**

**Helme, Kristi**; **Kotta, Ülle** Mente et Manu 2013 / lk. 6-8 : fot

### **A test for the generic strong-accessibility of meromorphic nonlinear systems**

Carravetta, Francesco; Sarafrazi, Mohammad Amin; Bartosiewicz, Zbigniew; **Kotta, Ülle** IEEE transactions on automatic control 2020 / p. 867-873 <https://doi.org/10.1109/TAC.2019.2921645> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Testing generic strong accessibility of nonlinear control systems via polynomial (quadratic) immersion**

Carravetta, Francesco; Sarafrazi, Mohammad Amin; Bartosiewicz, Zbigniew; **Kotta, Ülle** 61st IEEE Conference on Decision and Control, CDC 2022, Cancun, 6 December - 9 December 2022, proceedings 2022 / p. 1841-1846 <https://doi.org/10.1109/CDC51059.2022.9992952> [Conference Proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

### **The concepts of Lie derivative for discrete-time systems**

**Mullari, Tanel**; **Kotta, Ülle**; Bartosiewicz, Zbigniew; Pawluszewicz, Ewa Proceedings of the Estonian Academy of Sciences 2012 / p. 253-265 : ill

### **The connection between different static state feedback linearizability conditions of discrete time nonlinear control systems**

**Mullari, Tanel**; **Kotta, Ülle**; **Tõnso, Maris** Proceedings of the European Control Conference 2007, Kos, Greece, July 2-5, 2007 2007 / p. 4268-4275 <http://ieeexplore.ieee.org/document/7068444/>

### **The strong Popov form of nonlinear input–output equations**

Bartosiewicz, Zbigniew; Pawluszewicz, Ewa; Wyrwas, Małgorzata; **Kotta, Ülle; Tönso, Maris** Proceedings of the Estonian Academy of Sciences 2018 / p. 193–206 <https://doi.org/10.3176/proc.2018.3.01> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Tracking control of nonlinear pneumatic actuator systems using static state feedback linearization of the input-output map**

Wang, Jihong; **Kotta, Ülle**; Ke, Jia Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2007 / 1, p. 47-66 : ill

### **Transfer functions of discrete-time nonlinear control systems**

Halas, Miroslav; **Kotta, Ülle** Proceedings of the Estonian Academy of Sciences. Physics. Mathematics 2007 / 4, p. 322-335

### **Transfer matrix and its Jacobson form for nonlinear systems on time scales : mathematica implementation**

**Belikov, Juri; Kotta, Ülle; Leibak, Alar** Full Papers : 18th International Conference on Process Control '11 : June 14-17, 2011, Tatransk Lomnica, Slovakia 2011 / p. 141-146

### **Transformation of nonlinear discrete-time state equations into the observer form : extension to non-reversible case**

**Mullari, Tanel; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2021 / p. 235-247 <https://doi.org/10.3176/proc.2021.3.03> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Transformation of nonlinear discrete-time state equations into the observer form : revision**

**Mullari, Tanel; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2023 / p. 1-5 <https://doi.org/10.3176/proc.2023.1.01>

### **Transformation of nonlinear discrete-time system into the extended observer form**

**Kaparin, Vadim; Kotta, Ülle** International journal of control 2018 / p. 848-858 <https://doi.org/10.1080/00207179.2017.1294264> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Transformation of nonlinear MIMO discrete-time systems into the extended observer form**

**Kaparin, Vadim; Kotta, Ülle** Asian journal of control 2019 / p. 2208–2217 : ill <https://doi.org/10.1002/asjc.1824> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Transformation of nonlinear state equations into observer form = Mittelinearsete olekuvõrrandite olekutaastaja kujule teisendamine**

**Kaparin, Vadim** 2013 [https://www.ester.ee/record=b2998616\\*est](https://www.ester.ee/record=b2998616*est)

### **Transformation of nonlinear state equations into the observer form : necessary and sufficient conditions in terms of one-forms**

**Kaparin, Vadim; Kotta, Ülle** Kybernetika 2015 / p. 36-58 <http://dx.doi.org/10.14736/kyb-2015-1-0036>

### **Transformation of the transfer matrix of the nonlinear system into the Jacobson form**

**Belikov, Juri; Kotta, Ülle; Leibak, Alar** Proceedings of the 2010 IRAST International Congress on Computer Applications and Computational Science (CACs 2010) : 4-6 December 2010, Singapore 2010 / p. 495-498

### **Täppisteaduste valdkonna aastapreemia tööde tsükli "Algebralised meetodid matemaatilises juhtimisteoorias" eest : Ülle Kotta. Algebralised meetodid matemaatilises juhtimisteoorias**

**Kotta, Ülle** Eesti Vabariigi preemiad 2018 : teadus. F. J. Wiedemanni keelea hind. Kultuur. Sport 2018 / lk. 76-89 : portr

### **Universal tool for solving different control problems**

**Kotta, Ülle** 5th Junior European Meeting on Control & Information Technology : September 20-22, 2006, Tallinn, Estonia : book of abstracts 2006 / p. 1

### **Weak reachability and controllability of discrete-time nonlinear systems: generic approach and singular points**

**Mullari, Tanel; Kotta, Ülle**; Bartosiewicz, Zbigniew; Sarafrazi, Mohammad Amin; Moog, Claude; Pawluszewicz, Ewa International journal of control 2020 / p. 483-489 <https://doi.org/10.1080/00207179.2018.1479076> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **WebMathematica-based tools for discrete-time nonlinear control systems**

**Tönso, Maris; Rennik, Heli; Kotta, Ülle** Proceedings of the Estonian Academy of Sciences 2009 / 4, p. 224-240

### **Автоматизированное проектирование многомерных линейных систем управления**

Oit, Monika; Pajuruu, J.; Härmaorg, T.; **Jaaksoo, Ülo; Kotta, Ülle; Nurges, Ülo** VIII Всесоюзное совещание по проблемам управления : Таллин, октябрь 1980 : тезисы докладов. Книга 3 1980 / с. 597-600 [https://www.ester.ee/record=b1275375\\*est](https://www.ester.ee/record=b1275375*est)

### **Идентификация многомерных линейных стационарных динамических систем : автореферат ... кандидата технических наук (05.13.01)**

**Kotta, Ülle** 1980 [https://www.ester.ee/record=b3545499\\*est](https://www.ester.ee/record=b3545499*est)

**Управление дискретными обратимыми системами нелинейными системами : автореферат ... доктора физико-математических наук**

**Kotta, Ülle** 1992 [https://www.ester.ee/record=b1164884\\*est](https://www.ester.ee/record=b1164884*est)

**Частичная декомпозируемость многомерных систем**

**Kotta, Ülle** Eesti NSV Teaduste Akadeemia toimetised. Füüsika. Matemaatika = Известия Академии наук Эстонской ССР. Физика. Математика = Proceedings of Academy of Sciences of the Estonian SSR. Physics. Mathematics 1987 / lk. 30-35  
[https://www.ester.ee/record=b1264310\\*est](https://www.ester.ee/record=b1264310*est)