Curriculum Vitae – Péter Polcz

Address:	Pázmány Péter Catholic University (PPCU), Faculty of Information Technology and Bionics (FITB), Práter 50/a, H-1083 Budapest, Hungary
E-mail:	polcz.peter@itk.ppke.hu

Education

Ph.D. in Engineering Information Technology	FITB PPCU, Budapest	2021
M.Sc. in Engineering Information Technology	FITB PPCU, Budapest	2016
B.Sc. in Engineering Information Technology	FITB PPCU, Budapest	2014

Research Experience

Ph.D. student: Analysis and Control of Dynamical Systems Group, Roska Tamás Doctoral School of Sciences and Technology, FITB PPCU, Budapest. 2016 – 2021
Thesis advisor: Dr. Gábor Szederkényi DSc.

M.Sc. student (assistant research fellow)**:** Analysis and Control of Dynamical Systems Group, FITB PPCU, Budapest. 2014 – 2016
Research advisor: Dr. Gábor Szederkényi DSc.

B.Sc. student (undergraduate research assistant)**:** Distributed Events Analysis Research Group, Institute for Computer Science and Control, Hungarian Academy of Sciences, Budapest. 2013 – 2014
Research advisor: Dr. Csaba Benedek DSc.

Research Interest

Modeling, analysis, filtering, and control of nonlinear uncertain dynamical systems

Honors and Awards

Pro Scientia Gold Medal issued by the President of the Hungarian Academy of Sciences and the President of the National Student's Scientific Council. 2017

Innovation Award issued by Pro Progressio Foundation. 2017

National Scientific Students' Associations Conference (OTDK) 2nd prize, Section of Intelligent systems, methods and solutions 1. *An improved method for estimating the domain of attraction of uncertain nonlinear systems.* 2017

National Scientific Students' Associations Conference (OTDK) 1st prize, Section of Applied Informatics II. *3D virtual city reconstruction from LiDAR point clouds.* 2015

Publications Publications (MTMT)

SCI journal papers

[P1] P. Polcz, T. Péni, B. Kulcsár, and G. Szederkényi. Induced L2-gain computation for rational LPV systems using Finsler's lemma and minimal generators. *Systems & Control Letters*, 142:104738, 2020. ISSN: 0167-6911. DOI: 10.1016/j.sysconle.2020.104738.

[P2] P. Polcz, T. Péni, and G. Szederkényi. Computational method for estimating the domain of attraction of discrete-time uncertain rational systems. *European Journal of Control*, 49:68–83, 2019. ISSN: 0947-3580. DOI: 10.1016/j.ejcon.2018.12.004.

[P3] P. Polcz, T. Péni, and G. Szederkényi. Improved algorithm for computing the domain of attraction of rational nonlinear systems. *European Journal of Control*, 39:53–67, 2017. ISSN: 0947-3580. DOI: 10.1016/j.ejcon.2017.10.003.

Other journal papers

[P4] P. Polcz, T. Péni, and G. Szederkényi. Reduced linear fractional representation of nonlinear systems for stability analysis. *IFAC-PapersOnLine*, 51(2):37–42, 2018. 9th Vienna International Conference on Mathematical Modelling. ISSN: 2405-8963. DOI: 10.1016/j.ifacol.2018.03.007.

[P5] P. Polcz and G. Szederkényi. Computational stability analysis of Lotka-Volterra systems. *Hungarian Journal of Industry and Chemistry*, 44(2):113–120, 2016. DOI: 10.1515/hjic-2016-0014.

[P6] P. Polcz, G. Szederkényi, and T. Péni. An improved method for estimating the domain of attraction of nonlinear systems containing rational functions. *Journal of Physics: Conference Series*, 659(1):012038, Nov. 2015. DOI: 10.1088/1742-6596/659/1/012038.

[P7] N. Al-Hemeary, P. Polcz, and G. Szederkényi. Optimal solar panel area computation and temperature tracking for a cubesat system using model predictive control. *SPIIRAS Proceedings*, 19(3):564–593, 2020. DOI: 10.15622/sp.2020.19.3.4.

Conference papers

[P8] P. Polcz, B. Kulcsár, T. Péni, and G. Szederkényi. Passivity analysis of rational LPV systems using Finsler's lemma. In: *2019 IEEE 58th Conference on Decision and Control (CDC)*. Nice, France, Dec. 2019, 3793–3798. DOI: 10.1109/CDC40024.2019.9029877.

[P9] P. Polcz, G. Szederkényi, and K. M. Hangos. Computational stability analysis of an uncertain bioreactor model. In: *13th International Symposium on Stability, Vibration, and Control of Machines and Structures - SVCS 2016, June 16-18, Budapest, Hungary*. 2016, 21–32.

[P10] P. Polcz, G. Szederkényi, and B. Kulcsár. Computation of rational parameter dependent Lyapunov functions for LPV systems. In: *Swedish Control Conference (Reglermöte) 2018*. 2018. DOI: 10.29007/9m7r.

Other papers and research reports

[P11] P. Polcz, G. Szederkényi, and T. Péni. An improved method for estimating the domain of attraction of uncertain rational nonlinear systems by using LMI stability conditions. *Jedlik Laboratories Reports*, III.(4):7–33, 2015.

[P12] P. Polcz, G. Szederkényi, and B. Kulcsár. Observer based dynamic output design for linear time-invariant systems ensuring stable zero dynamics. *Jedlik Laboratories Reports*, VI.(1):3–14, 2018.

[P13] P. Polcz and G. Szederkényi. Computational stability analysis of an uncertain Van der Pol system. In: *PhD Proceedings Annual Issues of the Doctoral School Pázmány Péter Catholic University, Faculty of Information Technology and Bionics - 2017*. Ed. by P. S. G. Prószéky. 50/a Práter street, 1083 Budapest, Hungary: Pázmány University ePress, 2017, 41–41.

[P14] P. Polcz and G. Szederkényi. Global stability analysis of linear parameter varying systems via quadratic separator for uncertain constrained systems. In: *PhD Proceedings Annual Issues of the Doctoral School Pázmány Péter Catholic University, Faculty of Information Technology and Bionics - 2018*. Ed. by P. S. G. Prószéky. 50/a Práter street, 1083 Budapest, Hungary: Pázmány University ePress, 2018, 34–34.

[P15] P. Polcz and G. Szederkényi. Local performance estimation of nonlinear rational systems in a convex computational framework using Finsler's lemma and affine annihilators. In: *PhD Proceedings Annual Issues of the Doctoral School Pázmány Péter Catholic University, Faculty of Information Technology and Bionics - 2019*. Ed. by P. S. G. Prószéky. 50/a Práter street, 1083 Budapest, Hungary: Pázmány University ePress, 2019, in press.

[P16] P. Polcz and C. Benedek. 3D mesh generation from aerial LiDAR point cloud data. In: *Proceedings of VII. Magyar Számítógépes Grafika és Geometria Konferencia*. 2014.