

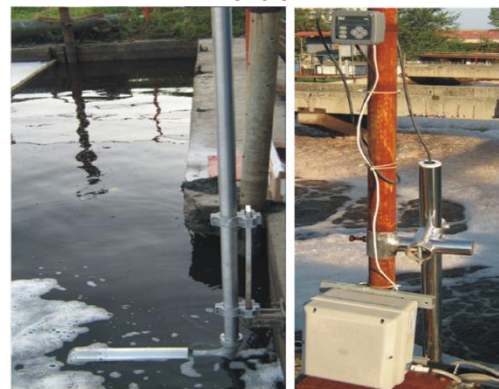
INDUSTRIAL PROCESSES CONTROL SYSTEMS AND INSTRUMENTATION

Contact details

Name	Industrial Processes Control Systems and Instrumentation
Acronym	IPCSI
Logo	
Site	http://research.utcluj.ro/tl_files/research/Research%20Domain/Systems%20Engineering/6_Nascu.pdf
Address	2 Observatorului street, lab. 301, Cluj-Napoca, Romania
Faculty Department	Faculty of Automation and Computer Science Automation Department
Telephone	+40-264-401 819
Fax	+40-264-401 220
Director	Prof. Dr. Eng. Ioan Nascu
e-mail	ioan.nascu@aut.utcluj.ro



Wastewater Treatment Plant Monitoring and Control



Control of the dissolved oxygen concentration in a wastewater treatment plant

Areas of expertise

Industrial processes control systems.

Performance evaluation of industrial processes, design, implementation and analysis of automatic systems for the control of process parameters.

Advanced automatic control strategies: evolved control structures, advanced control algorithms.

Embeddedsystems-microcontrollers, data acquisition interfaces, industrial communications.

Team

Prof. Dr. Eng. Ioan Nascu

Assist. Prof.Dr. Eng. Ruben Crisan, Assist. Dr. Eng. Tudor Buzdugan,

PhD students: Assist. Drd. Eng.Harja Gabriel, Drd. Eng.Butuza Alexandru, Drd. Eng.Cristescu Stefana

Representative projects

SOMCEB - Development and validation of a multi-variable control system for the biological stage of wastewater treatment plants, PN-III-P2-2.1-CI-2018-1212, <https://somceb.wixsite.com/proiect>

MULTIBAR, "Automatic modules for drinkable water using advanced oxidation processes and biofilter (multiple barriers)", PNII Innovation, 12DPST/20.08.2013, http://www.icpebn.ro/site_ro/cercetare/multibar/index.html (2013-2016)

CASEAU - "Strategii de conducere bazate pe tehnici de control avansat pentru optimizarea performantelor statiilor de epurare a apelor uzate si reducerea consumurilor energetice", PCCA 2013, Contract no. 274/2014, Caseau.wix.com/proiect

TEHNOPUR, "Obtaining ultrapure water plant from primary sources", 2008-2010, INNOVATION Contract no. 177/2008, http://www.icpebn.ro/site_ro/cercetare/tehnopur/index.html (2008-2010)

Significant results

The most representative publications of the past 5 years:

1. Birs, Isabela; Muresan, Cristina; Nascu, Ioan; et al., Experimental results of fractional order PI controller designed for second order plus dead time (SOPDT) processes 15th International Conference on Control, Automation, Robotics and Vision (ICARCV) Location: Singapore, SINGAPORE Date: NOV 18-21, 2018 Book Series: International Conference on Control Automation Robotics and Vision Pages: 1143-1147 Published: 2018
2. Crisan, Ruben; Harja, Gabriel; Nascu, Ioan; et al., Hierarchical Control System for Energy Savings in Wastewater Treatment Plant, 21st IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR THETA) Location: Cluj Napoca, ROMANIA Date: MAY 24-26, 2018 Book Series: IEEE International Conference on Automation Quality and Testing Robotics Published: 2018
3. Dragan, Paul; Stanese, Mihai; Nascu, Ioan, Camera-based liquid level measurement using the refractive properties of the medium, 21st IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR THETA) Location: Cluj Napoca, ROMANIA Date: MAY 24-26, 2018 Book Series: IEEE International Conference on Automation Quality and Testing Robotics Published: 2018
4. Muresan, Cristina I.; Nascu, Ioan; Dulf, Eva H., Design and Dynamics Analysis of a Fractional Order IMC Controller for a Waste Water Treatment Plant PROCEEDINGS OF THE 2017 12TH IEEE CONFERENCE ON INDUSTRIAL ELECTRONICS AND APPLICATIONS (ICIEA) Book Series: IEEE Conference on Industrial Electronics and Applications Pages: 693-698 Published: 2017
5. G. Harja, I. Nascu, C. Muresan, and I. Nascu, "Improvements in Dissolved Oxygen Control of an Activated Sludge Wastewater Treatment Process", *Circuits Systems and Signal Processing*, vol. 35, pp. 2259-2281, Jun 2016.
6. I. Nascu, G. Harja, "MPC advanced control of dissolved oxygen in an activated sludge wastewater treatment plant", *2016 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR)*, Vol.1, pp. 269-274, 2016.
7. I. Nascu, N. Ioana, "Modelling and optimization of an activated sludge wastewater treatment process", *Computer Aided Chemical Engineering*, Vol.38, pp.1159-1164, 2016.
8. Crisan R., Nascu I., De Keyser R., Volcke E., "EPSAC for wastewater treatment process", (BSM1). *17th International Conference on System Theory, Control and Computing (ICSTCC)*, 14-19.Oct. 2015, Cheile Gradistei, Pages: 403 - 408, DOI: 10.1109/ICSTCC.2015.7321327, IEEE Catalog Number: CFP1536P-ART.
9. Harja G., Vlad G., Nascu I., "Dissolved oxygen control strategy for an activated sludge wastewater treatment process", *Recent Advances in Electrical Engineering Series. Recent Advances in Systems. Proceedings of the 19th International Conference on Systems (part of CSCC'15)*, 16-20 July 2015, Zakynthos, Greece, Pages: 453 - 458.
10. B. Muresan, S. Folea, I. Nascu, C. Ionescu, R. De Keyser, "Identification and modeling of the three rotational movements of a miniature coaxial helicopter", in *Transactions of the Society for Modeling and Simulation International*, vol. 89, no. 12, December 2013
11. C.Dărab, R. Crișan, G. Vlad, I. Nașcu, "An approach for industrial wastewater treatment process", in *Advances in Environmental Sciences*, vol. 5 issue 2, pp. 234-238, June 2013

Patents:

"Parameters scheduling method for PID controllers", no. VI/112, September, 30, 2013

The offer addressed to the economic environment

Research & development	Modeling and simulation of processes with applications especially in chemical and biochemical processes. Advanced control strategies in biochemical processes. Advanced control strategies with applications in medicine.
Consulting	Evaluation and optimization of automatic control systems. Implementation of control systems using advanced control strategies
Training	Industrial process control systems Intelligent systems for buildings automation Sensors and instrumentation. PLC configuration and programming. Advanced control algorithms (model based predictive control, adaptive control).