# RAPORT ACTIVITATE [1]

pe anul 2023

**1. Datele de identificare ale unității de cercetare (UC)**

1.1. Denumirea UC[2]: **Sisteme de conducere automată a proceselor (SCAP)**

1.2. Document de înființare și anul de înființare[3]: **Certificat de înfiinţare acordat de CNCSIS nr. 35/CC-C 2001**

1.3. Adresa UC: **Universitatea „Dunărea de Jos" din Galați, Facultatea Automatică, Calculatoare, Inginerie Electrică și Electronică, Galați, Str. Științei nr.2 corp Y sala Y604**

1.4. Telefon, fax, pagina web, e-mail: 0336130298, fax 0336130299, e-mail: daniela.cernega@ugal.ro

**2. Scurtă prezentare**

2.1. Domeniul fundamental/ramura de știință[4]: **Științe inginerești/Ingineria Sistemelor**

2.2. Directii de cercetare-dezvoltare/obiective de cercetare/priorități de cercetare

a. Conducerea proceselor neliniare (modelarea, estimarea stării şi controlul proceselor de tratare biologică a apelor reziduale, conducerea roboţilor mobili si a sistemelor flexibile de fabricaţie);
b. Optimizări discrete (Conducerea şi optimizarea proceselor continue şi cu evenimente discrete).

**3. Structura de conducere a UC**

3.1. Coordonator (Director/Responsabil) **Conf.dr.ing Daniela Cristina CERNEGA**

3.2. Consiliul de conducere/științific **Prof.dr.ing. Sergiu CARAMAN, Prof.dr.ing. Marian BARBU**

**4. Structura resursei umane**

**Numărul total de membri, din care: (a+b)=18**

a. Număr membri titulari [5] : 18 : Daniela Cristina CERNEGA, Sergiu CARAMAN, Viorel MÎNZU, Adrian FILIPESCU, Marian BARBU, Răzvan ŞOLEA, George IFRIM, Adrian ŞERBENCU, Bogdan CODREŞ, Laurențiu LUCA, Adriana FILIPESCU, Larisa DIACONU, Iulian VASILIEV, Dan IONESCU, Georgian SIMION, Liliana GHINEA, Bogdan ROSU, Ira Adeline SIMIONOV

Număr membri asociați: din care:0

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[1] La Raportare se va avea in vedere doar activitatea desfășurată de membrii titulari (Mt) ai UC

[2] Inclusiv acronim.

[3] Se specifică numărul Hotărârii de Senat și data aprobării

[4] In acord cu HOTĂRÂREA Nr. 433/2022 privind aprobarea Nomenclatorului domeniilor şi al specializărilor/programelor de studii universitare şi a structurii instituţiilor de învăţământ superior pentru anul universitar 2022-2023

[5] Numai pe baza adeziunii aprobate de Responsabilul UC

b. Conducători de doctorat[6]: 4 conform tabelului 4.1

c. Număr de tineri cercetatori (postoctoranzi, doctoranzi, masteranzi etc): 14

d. Număr ingineri/tehnicieni: 0

**5. Infrastructura de cercetare-dezvoltare, facilități de cercetare**

5.1. Laboratoare/ compartimente[7]: 5.1. Laboratoare/compartimente[8]:2, conform Tabel 5.1

5.2. Echipamente, instalații și software de interes național pentru cercetare fundamentală, dezvoltare tehnologică și inovare[9]:-conform cu Tabelul 5.2

**6. Contracte de cercetare derulate[10]**

6.1. Contracte câștigate în competiții:
- internaționale:
- naționale:

6.2. Contracte cu agenți economici:
- din străinătate:
- din țară:

**7. Finanțarea UC din fonduri proprii UDJG[11]**

**8. Rezultatele activității de cercetare, dezvoltare și inovare (CDI)**

8.1.Rezultate ale activității CDI (cercetare fundamentala și aplicativă)[12]

| | | **Nr.** |
|---|---|---|
| **8.1.1** | Lucrări publicate în reviste cotate ISI | 4 |
| **8.1.2** | Factor de impact cumulat al lucrărilor cotate ISI | 8.2 |
| **8.1.3** | Citări în reviste de specialitate cotate ISI | 110 |
| **8.1.4** | Lucrări ştiinţifice/tehnice in reviste indexate în baze de date internaționale | 10 |
| **8.1.5** | Comunicări ştiinţifice prezentate la conferinţe internaţionale şi publicate în volumele acestora | 10 |

[6] Nume, prenume, domeniul de doctorat.
[7] Se vor nominaliza laboratoarele, responsabilul si principale direcțiile de cercetare.
[8] Se vor nominaliza laboratoarele, responsabilul si principale direcțiile de cercetare; în cazul laboratoarelor, se vor nominaliza compartimentele/colectivele de cercetare,
[9] Se se vor enumera numai acele laboratoare și acele echipamente care au fost folosite în activitatea de cercetare din ultimii 2 ani); Se vor nominaliza 1-2 repere reprezentative la nivel de universitate, regional și național.

[10] Se vor atasa liste pe categorii care să cuprindă următoarele detalii: nr. contract, titlu, domeniul (care se inscrie in lista domeniilor de cercetare declarate ale UC) de cercetare, director, parteneri (daca este cazul), valoare totala si valoarea regie și valoarea din regie care a fost solicitata pentru intretinerea UC.
[11] Se va specifica valoarea finanțarilor și destinația acestora.
[12] Se vor anexa lista acestor contribuții.

| | | |
|---|---|---|
| **8.1.6** | Comunicări ştiinţifice prezentate la conferinţe naţionale şi publicate în volumele acestora | - |
| **8.1.7** | Brevete de invenţie (solicitate / acordate) | 1 |
| **8.1.8** | Citări în sistemul ISI ale lucrărilor de cercetare/ brevete | |
| **8.1.9** | Produse/servicii/tehnologii rezultate din activităţi de cercetare, bazate pe brevete, omologări sau inovații proprii. | |
| **8.1.10** | Studii prospective şi tehnologice, normative, proceduri, metodologii şi planuri tehnice, noi sau perfecţionate, comandate sau utilizate de beneficiar. | |

8.2. Teze de doctorat finalizate și în derulare[13]

**Teze de doctorat finalizate și în derulare**

| Nr.crt. | Titlul tezei de doctorat | Finalizat/ în derulare | Domeniul de doctorat | Numele și prenumele doctorandului+ | Numele și prenumele conducătorului de doctorat |
|---|---|---|---|---|---|
| 1. | Contribuții privind conducerea automată a proceselor de digestie anaerobă | Finalizat cu diploma de doctor conform OME nr 4758/22.02.2022 | Ingineria Sistemelor | Larisa DIACONU | Prof.hab.dr.ing. Marian BARBU |
| 2. | Contribuții privind modelarea si conducerea automata a proceselor de tratare a apelor uzate | în derulare | Ingineria Sistemelor | Bogdan ROSU | Prof.hab.dr.ing. Marian BARBU |
| 3. | Conducerea automata avansata a proceselor complexe | în derulare | Ingineria Sistemelor | Liliana Ghinea | Prof.hab.dr.ing. Marian BARBU |
| 4 | *Contribuții privind modelarea și conducerea automată a* | în derulare | Ingineria Sistemelor | Ira Adeline Simionov | Prof.hab.dr.ing. Marian BARBU |

[13] Se va anexa lista tezelor de doctorat în derulare, cu specificarea titlului, domeniul de doctorat, nume doctorand, nume conducator de doctorat.

| | | | | | |
|---|---|---|---|---|---|
| | *bioproceselor* | | | | |
| 5 | Modelarea și conducerea tehnologiilor de fabricație pe linii de mecatronică multifuncționale cu sisteme robotice integrate | în derulare | Ingineria Sistemelor | Dan IONESCU | Prof.dr.ing. Adrian FILIPESCU |
| 6 | Contributii la integrarea sistemelor servoing vizuale in linii de fabricație flexibila de precizie asistate de sisteme robotice autonome | în derulare | Ingineria Sistemelor | Georgian SIMION | Prof.dr.ing. Adrian FILIPESCU |
| 7 | Optimal control of an integrating system consisting of a sewer network and a wastewater treatment plant | în derulare teza in cotutela cu Dept. de Telecomunicació i Enginyeria de Sistemes Escola d'Enginyeria, Univesitat Autonoma Barcelona | Ingineria Sistemelor | Iulian VASILIEV | Prof.dr.ing . Sergiu CARAMAN |

8.3. Oportunități de valorificare a rezultatelor CDI

8.4. Rezultate ale activității CDI valorificate și efectele obținute

**9. Măsuri privind creșterea capacității activității CDI**

**10. Măsuri pentru creșterea prestigiului și a vizibilității UC[14]**

10.1. Dezvoltarea de parteneriate:

- dezvoltarea de parteneriate la nivel național și internațional (cu personalități/ instituții / asociații profesionale) în vederea participării la programele naţionale şi internaţionale specifice;

[14] Se va descrie detaliat fiecare acțiune realizată.

-Dept. de Telecomunicació i Enginyeria de Sistemes Escola d'Enginyeria, Univesitat Autonoma Barcelona
-co-organizator Joint Conference ICSTCC 2023, co-organizator ETFA 2023, co-organizator ECC2023

- înscrierea UC în platforme naționale și internaționale care promovează parteneriatele; ERRIS
- înscrierea UC în rețele de cercetare/asociații profesionale de prestigiu pe plan național/internațional;

ECC, CSS IEEE

- personalități științifice ce au vizitat UC; Prof. Ramon Vilanova Dept. de Telecomunicació i Enginyeria de Sistemes Escola d'Enginyeria, Univesitat Autonoma Barcelona , Decanul Facultatii Automatica Universitataea Barcelona
- asigurarea de stagii de cercetare pentru specialiști din țară și străinătate;
- cursuri și seminarii susținute de personalitățile științifice invitate;
- membrii în colective editoriale ale revistelor recunoscute ISI sau incluse în baze internaționale de date.

10.2. Prezentarea rezultatelor la târgurile și expozițiile naționale și internaționale;

- târguri și expozitii internaționale;
- târguri și expoziții naționale.

10.3. Premii obținute prin proces de selecție/distincții, etc.

10.4. Prezentarea activitătii de mediatizare:

- extrase din presa (interviuri);
- participare la dezbateri radiodifuzate / televizate.

**11.Concluzii**

**Activitatea centrului de cercetare SCAP a asigurat vizibilitatea activitatii de cercetare din domeniul INGINERIA SISTEMELOR.**

Data:
29.03.2023

Responsabil/ Director UC
Daniela Cristina CERNEGA

## ANEXE

**Tabel 4.1.**

**Conducători de doctorat din cadrul UC**

| Nr.crt. | Nume și Prenume | Domeniul de doctorat |
|---|---|---|
| 1 | Prof.dr.habil.ing. Marian BARBU | Ingineria Sistemelor |
| 2 | Prof.dr.ing. Sergiu CARAMAN | Ingineria Sistemelor |
| 3 | Prof.dr.ing. Adrian FILIPESCU | Ingineria Sistemelor |
| 4 | Prof.dr.ing. Viorel MÎNZU | Ingineria Sistemelor |

**Tabel 5.1.**

**Laboratoare/ compartimente ale UC**

| Nr.crt. | Denumire Laborator/ Compartiment UC | Responsabil Laborator/ Compartiment | Direcții de cercetare |
|---|---|---|---|
| 1 | Sisteme de control a proceselor biotehnologice APEPUR | Conf.dr.ing. George IFRIM | Conducerea proceselor biotehnologice din domeniile apelor uzate si fotobioreactoarelor |
| 2 | Sisteme de control a proceselor neliniare SISCONTROL | Conf.dr.ing. Răzvan ŞOLEA | Conducerea sistemelor de roboti mobili si a sistemelor de flexibile de asamblare si fabricație |

**Tabel 5.2.**

**Echipamente, instalații și software de interes național pentru cercetare fundamentală, dezvoltare tehnologică și inovare** – doar repere reprezentative la nivelul UC

| Nr.crt. | Denumire echipament | Anul achiziției |
|---|---|---|
| 1 | Celula flexibila de asamblare/dezasamblare echipata cu manipulator industrial ABB IRM | 2021 |
| 2 | Linie de asambalare/dezasamblare Hera echipata cu senzori pentru IoT si conducere pentru Industrie 4.0 | 2008 actualizata 2023 |
| 3 | Fotobioreactor - | 2019 |

**6.1 Contracte/Granturi câștigate în competiții naționale/ internaționale**

| Nr.crt. | Nr.contract | Titlu proiect | Tip finanțare (național / internațional) | Domeniul de cercetare | UDJG coordonator / partener | Director contract | Perioada de derulare | Valoarea contractului alocata UDJG |
|---|---|---|---|---|---|---|---|---|
| 1 | Proiectul nr. 621764- EPP-1-2020-1-NO-EPPKA2-KA | Digitalisation of water industry by innovative graduate water education / DIGIWATER | internațional | | partener | Prof.dr.ing. Marian BARBU | 2020-2024 | |
| 2 | Proiect ID 536/2021 | Excelență și implicare în dezvoltarea inteligentă bazată pe cercetare și inovare la Universitatea Dunărea de Jos din Galați (UDJG) – DINAMIC | național | | partener | Prof.dr.ing. Marian BARBU | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3 | PN-III-P1-1.1-TE-2019-2062. Contract nr. TE 64 / 2020 | Modelarea si controlul mecanismelor de stres subletal la microalge in spiritul conceptului de biorafinarie (ReSuLS). | național | | coordonator | Conf.dr.ing. George IFRIM | 2020-2023 | |

**8.1.1Articole în reviste cotate ISI**

| Nr.crt. | Date de identificare articol (Autori,Titlu, cod DOI articol, Titlul revistei, anul publicării) | Factor de impact |
|---|---|---|
| 1 | Fast Coordinate Descent Augmented Lagrangian Methods for linearized MPC, **Ghinea, LM (Ghinea, Liliana Maria)**; Lupu, D (Lupu, Daniela); **Barbu, M (Barbu, Marian**); Necoara, I (Necoara, Ion), 2023, CONTROL ENGINEERING AND APPLIED INFORMATICS, WOS:000960180500006 | 0.9/2=0.45 |
| 2 | Semi-Supervised Anomaly Detection of Dissolved Oxygen Sensor in Wastewater Treatment Plants, **Ghinea, LM;** Miron, M and **Barbu, M,** SENSORS, WOS:001082179900001 | 3.9*2/3=2.6 |
| 3 | Execution Time Decrease for Controllers Based on Adaptive Particle Swarm Optimization, **Mínzu, V (Minzu, Viorel) [1**] ; Rusu, E (Rusu, Eugen) [2] ; Arama, I (Arama, Iulian) [3], Inventions, WOS:000938552300001 | 3.4/3=1.1 |
| Total | | 4.15 |

**8.1.3** Citări în reviste de specialitate cotate ISI.
1 Articol citat

***Solea, R.,*** Nunes, U.: Trajectory planning and sliding-mode control based trajectory-tracking for cybercars. Integrated Computer Aided Engineering 13(1), 1–15 (2007)
Citat in:

1.a Title: Autonomous Electric-Vehicle Control Using Speed Planning Algorithm and Back-Stepping Approach
Author(s): Bacha, S (Bacha, Sofiane); Saadi, R (Saadi, Ramzi); Ayad, MY (Ayad, Mohamed Yacine); Sahraoui, M (Sahraoui, Mohamed); Laadjal, K (Laadjal, Khaled); Cardoso, AJM (Cardoso, Antonio J. Marques)

Source: ENERGIES Volume: 16 Issue: 5 Article Number: 2459 DOI: 10.3390/en16052459 Published: MAR 2023

Accession Number: **WOS:000947736500001**

1.b. Title: Antifragile Control Systems: The Case of Mobile Robot Trajectory Tracking Under Uncertainty and Volatility

Author(s): Axenie, C (Axenie, Cristian); Saveriano, M (Saveriano, Matteo)

Source: IEEE ACCESS Volume: 11 Pages: 138188-138200 DOI: 10.1109/ACCESS.2023.3339988 Published: 2023

Accession Number: WOS:001124156100001

1.cTitle: Path following of an unmanned ground vehicle with GPS feedback using model predictive control method

Author(s): Bayram, A (Bayram, Atilla); Almali, MN (Almali, Mehmet Nuri); Al-Naqshbandi, FM (Al-Naqshbandi, Firas Muhammad)

Source: JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY Volume: 38 Issue: 1 Pages: 345-355 DOI: 10.17341/gazimmfd.1024463 Published: 2023

Accession Number: **WOS:000835332900027**

**2.** Articol citat:

***Solea, R,*** Cernega, D. „*Super twisting sliding mode controller applied to a nonholonomic mobile robot modeling*". In: 2015 19th international conference on system theory, control and computing (ICSTCC), Cheile Gradistei, Romania, October 2015. IEEE

Citat in

Title: FeedForward Super-Twisting Sliding Mode Control for Robotic Manipulators: Application to PKMs

Author(s): Saied, H (Saied, Hussein); Chemori, A (Chemori, Ahmed); Bouri, M (Bouri, Mohamed); El Rafei, M (El Rafei, Maher); Francis, C (Francis, Clovis)

Source: IEEE TRANSACTIONS ON ROBOTICS Volume: 39 Issue: 4 Pages: 3167-3184 DOI: 10.1109/TRO.2023.3255586 Early Access Date: APR 2023 Published: AUG 2023

Accession Number: **WOS:000973352800001**

3 Articol citat :

***Solea, R.,*** Filipescu, A., Nunes, U.; "*Sliding-mode control for trajectory-tracking of a wheeled mobile robot in presence of uncertainties*", (2009) Proceedings of 2009 7th Asian Control Conference, ASCC 2009, art. no. 5276210, pp. 1701-1706. ISBN: 978-899560569-1

Citat in

**3.1.** Title: Designing New Model-Based Adaptive Sliding Mode Controllers for Trajectory Tracking Control of an Unmanned Ground Vehicle

Author(s): Sekban, HT (Sekban, Hayriye Tugba); Basçi, A (Basci, Abdullah)

Source: IEEE ACCESS Volume: 11 Pages: 101387-101397 DOI: 10.1109/ACCESS.2023.3313942 Published: 2023

Accession Number: WOS:001071719500001

4. Articol citat

***Razvan Solea***; Alexandru Margarit; Daniela Cernega; Adrian Serbencu, "*Head Movement Control of Powered Wheelchair*", 23rd International Conference on System Theory, Control and Computing (ICSTCC) 2019, 9-11 Oct. 2019, Sinaia, Romania, pp. 632-637; DOI: 10.1109/ICSTCC.2019.8885844

Citat in:

**4.1**Title: Eye-Gaze Controlled Wheelchair Based on Deep Learning

Author(s): Xu, J (Xu, Jun); Huang, ZN (Huang, Zuning); Liu, LY (Liu, Liangyuan); Li, XH (Li, Xinghua); Wei, K (Wei, Kai)

Source: SENSORS Volume: 23 Issue: 13 Article Number: 6239 DOI: 10.3390/s23136239 Published: JUL 2023

Accession Number: **WOS:001028057400001**

**4.2**. Title: Non-Intrusive Head Movement Control for Powered Wheelchairs: A Vision-Based Approach

Author(s): Chatzidimitriadis, S (Chatzidimitriadis, Sotirios); Bafti, SM (Bafti, Saber Mirzaee); Sirlantzis, K (Sirlantzis, Konstantinos)

Source: IEEE ACCESS Volume: 11 Pages: 65663-65674 DOI: 10.1109/ACCESS.2023.3275529 Published: 2023

Accession Number: **WOS:001025454700001**

## **5.** Articol citat:

Digital Twin for a Multifunctional Technology of Flexible Assembly on a Mechatronics Line with Integrated Robotic Systems and Mobile Visual Sensor-Challenges towards Industry 5.0

Minca, E; Filipescu, A; Cernega, D; **Solea, R**; Filipescu, A; Ionescu, D; Simion, G

Source: SENSORS Volume: 22 Issue: 21 Article Number: 8153 DOI: 10.3390/s22218153, 2022

Accession Number: WOS:000881435200001

## Citat in

**5.1** Title: Digital Twin of a Gear Root Crack Prognosis

Author(s): Matania, O (Matania, Omri); Bechhoefer, E (Bechhoefer, Eric); Bortman, J (Bortman, Jacob)

Source: SENSORS Volume: 23 Issue: 24 Article Number: 9883 DOI: 10.3390/s23249883, 2023

Accession Number: **WOS:001130808200001**

**5.2** Title: A Review of Optimization and Measurement Techniques of the Friction Stir Welding (FSW) Process

Author(s): Prabhakar, DAP (Prabhakar, D. A. P.); Korgal, A (Korgal, Akash); Shettigar, AK (Shettigar, Arun Kumar); Herbert, MA (Herbert, Mervin A.); Chandrashekharappa, MPG (Chandrashekharappa, Manjunath Patel Gowdru); Pimenov, DY (Pimenov, Danil Yurievich); Giasin, K (Giasin, Khaled)

Source: JOURNAL OF MANUFACTURING AND MATERIALS PROCESSING Volume: 7 Issue: 5 Article Number: 181 DOI: 10.3390/jmmp7050181 Published: OCT 2023

**5.3**. Title: Demoethical Model of Sustainable Development of Society: A Roadmap towards Digital Transformation

Author(s): Zhanbayev, RA (Zhanbayev, Rinat A.); Irfan, M (Irfan, Muhammad); Shutaleva, AV (Shutaleva, Anna V.); Maksimov, DG (Maksimov, Daniil G.); Abdykadyrkyzy, R (Abdykadyrkyzy, Rimma); Filiz, S (Filiz, Sahin)

Source: SUSTAINABILITY Volume: 15 Issue: 16 Article Number: 12478 DOI: 10.3390/su151612478 Published: AUG 2023

Accession Number: **WOS:001057272300001**

## **6.** articol citat

Digital Twin for a Multifunctional Technology of Flexible Assembly on a Mechatronics Line with Integrated Robotic Systems and Mobile Visual Sensor-Challenges towards Industry 5.0

Minca, E; Filipescu, A; Cernega, D; **Solea, R**; Filipescu, A; Ionescu, D; Simion, G

Source: SENSORS Volume: 22 Issue: 21 Article Number: 8153 DOI: 10.3390/s22218153, 2022

Accession Number: WOS:000881435200001

## Citat in

**6.1** Title: A Bibliometric Analysis of Digital Twin in the Supply Chain

Author(s): Lam, WS (Lam, Weng Siew); Lam, WH (Lam, Weng Hoe); Lee, PF (Lee, Pei Fun)

Source: MATHEMATICS Volume: 11 Issue: 15 Article Number: 3350 DOI: 10.3390/math11153350 Published: AUG 2023

Accession Number: **WOS:001045631000001**

**6.2**. Title: Manufacturing in the Age of Human-Centric and Sustainable Industry 5.0: Application to Holonic, Flexible, Reconfigurable and Smart Manufacturing Systems

Author(s): Turner, C (Turner, Chris); Oyekan, J (Oyekan, John)

Source: SUSTAINABILITY Volume: 15 Issue: 13 Article Number: 10169 DOI: 10.3390/su151310169 Published: JUL 2023

**6.3**. Title: Simulation Power vs. Immersive Capabilities: Enhanced Understanding and Interaction with Digital Twin of a Mechatronic System

Author(s): Dosoftei, CC (Dosoftei, Constantin-Catalin)

Source: APPLIED SCIENCES-BASEL Volume: 13 Issue: 11 Article Number: 6463 DOI: 10.3390/app13116463 Published: MAY 25 2023

Accession Number: **WOS:00100399550000**

**6.4** Title: Industry 5.0: Tracking Scientific Activity on the Most Influential Industries, Associated Topics, and Future Research Agenda

Author(s): Espina-Romero, L (Espina-Romero, Lorena); Guerrero-Alcedo, J (Guerrero-Alcedo, Jesus); Avila, NG (Avila, Niria Goni); Sánchez, JGN (Sanchez, Jose Gregorio Norono); Hurtado, HG (Hurtado, Humberto Gutierrez); Li, AQ (Li, Aura Quinones)

Source: SUSTAINABILITY Volume: 15 Issue: 6 Article Number: 5554 DOI: 10.3390/su15065554, 2023

Accession Number: **WOS:000958688400001**

**6.5**. Title: A Novel Simulated Annealing-Based Hyper-Heuristic Algorithm for Stochastic Parallel Disassembly Line Balancing in Smart Remanufacturing

Author(s): Hu, YX (Hu, Youxi); Liu, C (Liu, Chao); Zhang, M (Zhang, Ming); Jia, Y (Jia, Yu); Xu, YC (Xu, Yuchun)

Source: SENSORS Volume: 23 Issue: 3 Article Number: 1652 DOI: 10.3390/s23031652 , FEB 2023

Accession Number: **WOS:000930431400001**

**6.6**. Title: Towards a Safe Human-Robot Collaboration Using Information on Human Worker Activity

Author(s): Orsag, L (Orsag, Luka); Stipancic, T (Stipancic, Tomislav); Koren, L (Koren, Leon)

Source: SENSORS Volume: 23 Issue: 3 Article Number: 1283 DOI: 10.3390/s23031283, FEB 2023

Accession Number: **WOS:000929722000001**

## **7.** Articol citat

Title: Communication and Control of an Assembly, Disassembly and Repair Flexible Manufacturing Technology on a Mechatronics Line Assisted by an Autonomous Robotic System

Author(s): Ionescu, D (Ionescu, Dan); Filipescu, A (Filipescu, Adrian); Simion, G (Simion, Georgian); Minca, E (Minca, Eugenia); Cernega, D (Cernega, Daniela); **Solea, R (Solea, Razvan**); Filipescu, A

Source: INVENTIONS Volume: 7 Issue: 2 Article Number: 43 DOI: 10.3390/inventions7020043, JUN 2022

Accession Number: WOS:000818151300001

## Citat in

**7.1**. Title: Towards a circular economy for electrical products: A systematic literature review and research agenda for automated recycling

Author(s): Bründl, P (Bruendl, Patrick); Scheck, A (Scheck, Albert); Nguyen, HG (Nguyen, Huong Giang); Franke, J (Franke, Joerg)

Source: ROBOTICS AND COMPUTER-INTEGRATED MANUFACTURING Volume: 87 Article Number: 102693 DOI: 10.1016/j.rcim.2023.102693 Early Access Date: DEC 2023 Published: JUN 2024

Accession Number: **WOS:001133025600001**

**7.2** Title: Mechatronics Design and Robotic Simulation of Serial Manipulators to Perform Automation Tasks in the Avocado Industry

Author(s): Paredes, C (Paredes, Carlos); Palomares, R (Palomares, Ricardo); Alva, J; Cornejo, J

Source: INTERNATIONAL JOURNAL OF ADVANCED COMPUTER SCIENCE AND APPLICATIONS Volume: 14 Issue: 8 Pages: 509-517 Published: AUG 2023

Accession Number: **WOS:001064718400001**

**7.3** Title: Editorial Note for the Special Issue: Perspectives and Challenges in Doctoral Research-Selected Papers from the 10th Edition of the Scientific Conference of the Doctoral Schools from the "Dunarea de Jos"

Author(s): Rusu, E (Rusu, Eugen); Rapeanu, G (Rapeanu, Gabriela)

Source: INVENTIONS Volume: 8 Issue: 3 Article Number: 73 DOI: 10.3390/inventions8030073,JUN 2023

8.

Articol citat:

Title: Event-Based PID Control of a Flexible Manufacturing Process

Author(s): Duca, O (Duca, Octavian); Minca, E (Minca, Eugenia); Filipescu, A (Filipescu, Adrian); Cernega, D (Cernega, Daniela); Solea, R (Solea, Razvan); Bidica, C (Bidica, Claudiu)

Source: INVENTIONS Volume: 7 Issue: 4 Article Number: 86 DOI: 10.3390/inventions7040086 Published: DEC 2022

Accession Number: WOS:000902580500001

Citat in

**8.1** Title: Proportional-Integral-Derivative Controller Based-Artificial Rabbits Algorithm for Load Frequency Control in Multi-Area Power Systems

Author(s): El-Sehiemy, R (El-Sehiemy, Ragab); Shaheen, A (Shaheen, Abdullah); Ginidi, A (Ginidi, Ahmed); Al-Gahtani, SF (Al-Gahtani, Saad F.)

Source: FRACTAL AND FRACTIONAL Volume: 7 Issue: 1 Article Number: 97 DOI: 10.3390/fractalfract7010097 Published: JAN 2023

Accession Number: WOS:000917595300001

9 Articol citat:

Chipaila, C.M., Grigore, D., Marin, G., **Solea, R**., Cernega, D.C.

Hardware and software solutions for a conventional electric-powered wheelchair

(2012) *2012 16th International Conference on System Theory, Control and Computing, ICSTCC 2012 - Joint Conference Proceedings*

Citat in

. Maneetham, D., Crisnapati, P.N., Thwe, Y. Autonomous open-source electric wheelchair platform with internet-of-things and proportional-integral-derivative control (2023) International Journal of Electrical and Computer Engineering, 13 (6), pp. 6764-6777. 1)

**DOI: 10.11591/ijece.v13i6.pp6764-6777**

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23. 13.Editorial Note for the Special Issue: Perspectives and Challenges in Doctoral Research—Selected Papers from the 10th Edition of the Scientific Conference of the …E Rusu, G Rapeanu - Inventions, 2023 - mdpi.com
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64.

### 8.1.4 Comunicări ştiinţifice prezentate la conferinţe internaţionale

| Nr.crt. | Autori, Titlul lucrării | Titlul conferinței | Perioada | Organizator |
|---|---|---|---|---|
| 1 | Diaconu L.; Vilanova R.; Barbu M., *Using Optimal Filters for Plug-in Type Repetitive Controllers for Periodic Inputs*, | IEEE International Conference on Emerging Technologies and Factory Automation, ETFA | 12-15 sept 2023 | IEEE, |
| 2 | Duca O.; Minca E.; Filipescu A.; Cernega D.; Solea R.; Filipescu A, *Flexible Manufacturing with Integrated Robotic Systems in the Context of Industry 5.0* | IEEE International Conference on Emerging Technologies and Factory Automation, ETFA | 12-15 sept 2023 | IEEE |
| 3 | Filipescu A.; Cernega D.; Solea R.; Filipescu A.; Minca E.; Ionescu D.; Simion G. *Modeling and Control an A/DT Served by an ACPS based on SCADA, Industry 4.0 and 5.0* | IEEE International Conference on Emerging Technologies and Factory Automation, | 12-15 sept 2023 | IEEE |

| | | | | |
|---|---|---|---|---|
| | | ETFA | | |
| 4 | Filipescu A.; Minca E.; Cernega D.; Solea R.; Filipescu A.; Simion G.; Ionescu D.<br>*Digital Twin Based a Processing Technology Assisted by a MCPRS, Ready for Industry 5.0* | 2023 27th International Conference on System Theory, Control and Computing, ICSTCC 2023 - Proceedings | 8-10 oct 2023 | CSS IEEE |
| 5 | Ghinea L.M.; Lupu D.; Barbu M.; Necoara I.<br>Control of a wastewater treatment process using linear and nonlinear model predictive control | IEEE International Conference on Emerging Technologies and Factory Automation, ETFA | 12-15 sept 2023 | IEEE |
| 6 | Prunean R.-A.; Solea R.; Cernega D.-C.<br>*Variable Velocity Planning Algorithm for Autonomous Robot or Car* | IEEE International Conference on Emerging Technologies and Factory Automation, ETFA | 12-15 sept 2023 | IEEE |
| 7 | Vasiliev I.; Luca I.; Condrachi L.; Luca L.; Barbu M.; Vilanova R.; Caraman S.<br>*Model Predictive Control of a wastewater treatment process using neural networks* | IEEE International Conference on Emerging Technologies and Factory Automation, ETFA | 12-15 sept 2023 | IEEE |
| 8 | Vasiliev I.; Luca L.; Barbu M.; Vilanova R.; Caraman S.<br>*An analysis towards integrated control of wastewater collecting and treatment systems* | 2023 27th International Conference on System Theory, Control and Computing, ICSTCC 2023 - Proceedings | 8-10 oct 2023 | CSS IEEE |
| 9 | Vasiliev I.; Luca L.; Barbu M.; Vilanova R.; Caraman S.<br>*Sliding Window-based Particle Swarm optimization Algorithm for a Sewer Network* | 2023 European Control Conference, ECC 2023 | Iun 2023 | CSS |

| | | | | |
|---|---|---|---|---|
| 10 | Vilanova R.; Meneses M.; Dominguez M.; Blanco A.M.; Barbu M.; Selistanu D.; Visioli A.; Capodaglio A.; Andritsos N.; Samaras P.; Plakas K.<br>*NICEST - Master study proposal on Next generation Industrial Control Engineering for Sustainable water system Treatment* | 36th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2023 | | |

8.1.7 **Brevete de invenţie (solicitate / acordate)**

Cerere de brevet depusa

RO137368A2 – Romania, „Sistem experimental şi algoritm de control pentru implementarea şi testarea filtrelor active electronice de putere trifazate de joasă tensiune, de tip paralel”, Marian Găiceanu, Silviu Ionuţ Epure, **Răzvan-Constantin Şolea**, Alexandru Duşa, Iulian Ghenea