

PERSONAL INFORMATION

Aurel FRATU

✉ e-mail address fratu@unitbv.ro ;

POSITION
IOSUD UTBV

PhD Coordinator
Doctoral studies field: Electrical Engineering...
Since 2015

EXPERTISE FIELD AND
RESEARCH INTEREST
AREAS

Command and control of intelligent technical systems
Focus on computer-based representations. Modelation and Simulation of technical structures and their optimization based on virtual prototypes.
Creative work to develop originaly products

WORK EXPERIENCE

2000 -present	University professor
1994 -2000	Associate professor
1984 -1994	Head of works
1978 -1984	University Assistant
Transilvania University of Braşov	
1974 -1978	Trainee Engineer in the specialty of Electromechanics
IPRS Baneasa - Bucharest, AB - Brasov	

EDUCATION AND TRAINING

1969-1974	Student in the specialty of Electromechanics	Replace with EQF (or other) level if relevant
Transilvania University of Braşov		

PERSONAL SKILLS

Mother tongue(s)	Romanian				
Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
French	B1/B2: Independent user	B1/B2: Independent user	B1/B2: Independent user	B1/B2: Independent user	B1/B2: Independent user
English	A1/A2: Basic user	A1/A2: Basic user	A1/A2: Basic user	A1/A2: Basic user	A1/A2: Basic user

Communication skills

Intercultural skills. I adapt well to multicultural environments and to working in multi-language teams as professor.

Organisational / managerial skills

Mediating skills to promote creative work among students

Job-related skills Competent and extensive hand-on experience in design and implement control and learning algorithms for complex interactive / cooperative robotic systems

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER	PROFICIENT USER	PROFICIENT USER

Levels: Basic user - Independent user - Proficient user

Replace with name of ICT-certificates

- Computer skills and competences**
- Competent with most Microsoft Office programs, servers and services
 - Good knowledge of Matlab environment and programming language
 - Good knowledge of Lab VIEW visual programming language
 - Very good knowledge of Delphi environment and Delphi programming language
 - Extensive hand-on experience in environments and languages visual programming
 - Extensive hand-on experience in prototyping complex robotic systems

ADDITIONAL INFORMATION

- Conferences** Public **Conferences** at universities in France, Belgium, Italy
- Projects**
- TEMPUS project No IMG-95-RO-1079, 1995-96.
 - AUF project: "Shared resources for professional integration graduates in Central and Eastern Europe "-Member (2009-2012).
 - ERASMUS Plus project - Teaching by Prioritizing the Acquisition of Skills and of Professional Postures - EPACPP, 2015
- Honours and awards**
- the elite Inventor award / patent, granted by the Invention Commission a Romanian Academy
 - Visiting professor from 2006 to 2015, at universities in France, Belgium, Italy
- Memberships** Scientific societies in the country and abroad

ANNEXES

LIST OF RELEVANT PUBLICATIONS / RESEARCH (selection)

1. (2011) **FRATU, A.**, DEQUIT, A., VERMEIREN, L.: Virtual Scissors for Haptic Portable Torque-Feedback Device, Proceedings of the Remote Engineering and Virtual Instrumentation Conference - REV 2011, p.10-15. www.rev-conference.org
2. (2013) **Fratu, A.**, Dambrine, M.: *An analysis of the robot collision avoidance using the programming through imitation*, The International Conference on Manufacturing Systems - ICMaS 2013, 14-15 November, 2013, Bucharest, Romania. In: Proceedings in Manufacturing Systems, ISSN 2067-9238, Volume 8, Issue 2, 2013, pp.111-116. http://www.icmas.eu/Journal_archive_files/Vol_8-Issue2-2013-PDF/111-116_Fratu_01.pdf;
3. (2013) **Fratu, A.**, Becar, J.P.: *Robots Collision Avoidance Using Learning through Imitation*. In: Proceedings of the 4th International Symposium on Electrical and Electronics Engineering (ISEEE), IEEE Catalog Number CFP1393K-USB, ISBN 978-1-4799-2441-7, October 11-13, 2013, Galați, Romania. www.aciee.ugal.ro/ISEEE/2013/Abstract/Abstract_ISEEE2013.pdf
4. (2013) **Fratu, A.**, Dambrine, M., Vermeiren, L., Dequidt, A.: *An analysis of the reciprocal collision avoidance of cooperative robots*, In: Journal Automation, Control and Intelligent Systems, 2013; 1(3): 75-84, Published online July 30, 2013, Vol. 1, No. 3, 2013, pp. 75-84. doi: 10.11648/j.acis.20130103.17, <http://www.sciencepublishinggroup.com/j/acis>),
5. (2014) **Fratu, A.**, Fratu, M.: *Imitation-Based Motion Programming for Robotic Manipulators*, Proceedings of 14th International Conference on Optimization of Electrical and Electronic Equipment OPTIM 2014. May 22-24, 2014, Brasov, Romania, ISBN 978-1-4799-5183-3/14/\$31.00 ' 2014 IEEE, pp. 770-775
6. (2014) **Fratu, A.**, Riera, B., and Vrabie, V.: *Predictive strategy for robot behavioral control*, The International Conference on Manufacturing Systems - ICMaS 2014, 14-15 November, 2013, Bucharest, Romania, Journal Proceedings in Manufacturing Systems, ISSN 2343-7472, ISSN-L 2067-9238, Volume 9, Issue 3, 2014, pp.125-130, Romanian Academy Press
7. (2014) Bécar, J.P., Fratu, M., **Fratu, A.**, Canonne, J.C.: *Example based learning for virtual prototyping engineering*, Proceedings of EDULEARN14, International Conference, 7th-9th July 2014, Barcelona, Spain, ISBN: 978-84-617-0557-3, pp. 6027-6034.
8. (2015) **Fratu, A.**, Fratu, M.: Predictive robots programming based on imitation strategy, In Proceedings of the International Conference on New Developments in Circuits, Systems, Signal Processing, Communications and Computers (CSSCC 2015), ISBN: 978-1-61804-285-9, ISSN: 1790-5117, Vienna, Austria, March 15-17, 2015, pp. 253-258.
9. (2015) J.P. Becar, J.C. Canonne, E. Cartignies, M. **Fratu, A.** Fratu, M. Iwanowski, W. Czajewski THREE EXPERIMENTS OF LEARNING BY EXAMPLES, INTED2015 Proceedings 9th International Technology, Education and Development Conference, ISBN: 978-84-606-5763-7, ISSN: 2340-1079, 2-4 March, 2015, Madrid, Spain, pp. 1293-1302
10. (2019) Al. Popov, A. Fratu, I. Lepadat, E. Helerea, V. Cojanu, Monitoring the Cost of Energy for Powering the Railway Electric Traction System. 2019 8th International Conference on Modern Power Systems (MPS) Conference Paper, Publisher: IEEE, ISBN: 978-1-7281-0751-6, DOI: 10.1109/MPS.2019.8759724, pp.144-151, <https://ieeexplore.ieee.org/document>

ANNEX to CV

LIST OF RELEVANT PUBLICATIONS / RESEARCH (selection)

Patents

- Opera OMNIA – Fratu Aurel –

Provided by Romanian Office State for Inventions and Trade Marks (OSIM) and European Patent Office (EPO)
Indexed (partially) by Derwent World Patents Index (DWPI)

- 1 **Fratu, A.:** CONTROL METHOD FOR THE ELECTRIC INVERTERS AND INVERTER ACCORDING TO THE METHOD. RO112454 (B)
- 2 **Fratu, A. et al:** ELECTROMAGNETIC LINEAR SYNCHRONOUS OSCILLOMOTOR. RO98403 (B1)
- 3 **Fratu, A. et al:** INSTALLATION FOR DIRECTING GALVANIZING MANIPULATORS. RO96125 (B1)
- 4 **Fratu, A. et al:** INSTALLATION FOR MODIFYING SPEED OF AN ELECTRIC SHAFT ACTUATED BY ASYNCHRONOUS MACHINES. RO92205 (B1)
- 5 **Fratu, A. et al:** INSTALLATION FOR MODIFYING THE DISPLACEMENT SPEED OF ROLLING GIRDERS BY USING LINEAR ASYNCHRONOUS MACHINES. RO92027 (A2)
- 6 **Fratu, A. et al:** METHODE ET INSTALLATION POUR LA MODIFICATION DE LA VITESSE DES MACHINES ASYNCHRONES TRIPHASES PLANES. RO79433 (A2)
- 7 **Fratu, A.:** OIL DIPPER ROD WITH ELECTRIC SIGNALLING. RO97147 (B1)
- 8 **Fratu, A.:** METHOD AND SYSTEM FOR ADJUSTING SPEED OF DIRECT CURRENT MOTORS. RO97567 (B1)
- 9 **Fratu, A. et al:** METHOD AND SYSTEM FOR ADJUSTING SPEED OF THE ELECTRIC INDUCTION MOTORS
- 10 **Fratu, A.:** DEVICE FOR AUTOMATICALLY STOPPING THE ELECTRIC INDUCTION MOTORS UPON NO-LOAD RUNNING. RO96926 (A2)
- 11 **Fratu, A.:** ONE-WAY COUPLING. RO96273 (B1)
- 12 **Fratu, A. et al:** SYSTEME ELECTRIQUE DE SAISIR DU NIVEAU D'HUILE. RO66668 (A2)
- 13 **Fratu, A. et al:** LEVEL INDICATOR, WITH ELECTRIC RESISTANCE. RO108087 (B1)
- 14 **Fratu, A. et al:** MACHINE FOR SMOOTHING WOODEN ELEMENTS WITH PROFILED SURFACES. RO93403 (A2)
- 15 **Fratu, A. et al:** METHODE ET INSTALLATION POUR LE FONCTIONNEMENT EN REGIME PAS-A-PAS AVEC PAS ANGULAIRE CONSTANT DU MOTEUR ASYNCHROME TRIPHASE. RO90590 (A2)
- 16 **Fratu, A. et al:** METHODE DISPOSITIF POUR L'OBTENTION DES FREQUENCES D'OSCILLATION DIMINUEES AUX OSCILLATEURS ELECTRIQUES SYNCHRONES LINEAIRES. RO77841 (A2)
- 17 **Fratu, A. et al:** RELAIS DE PRESSION. RO76926 (A2)
- 18 **Fratu, A. et al:** MACHINE PNEUMATIQUE A VISSER ET A DEVISSER. RO76530 (A2)
- 19 **Fratu, A. et al:** ALTERNATIVE PNEUMATIC MOTOR. RO67876
- 20 **Fratu, A., et al:** METHOD FOR DETECTING PETROLEUM FLUID LEAKS FROM CRACKED UNDERGROUND METAL PIPES. RO125179 (A2).
- 21 **Fratu, A.:** METHOD AND INSTALLATION FOR JOINTS TRAJECTORY PLANNING OF A PHYSICAL ROBOT ARM, Patent Number(s): RO – 129121(A0).
- 22 Nicolaide, A., **Fratu, A.** METHOD AND INSTALLATION TO EXPERIMENTAL DETERMINATION OF THE LOSSES BY EDDY CURRENTS, Patent Number(s): RO129909 (A0)