



Europass Curriculum Vitae



Personal information

First name(s) / Surname

Cătălin Valentin MĂRCULESCU

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Telephone(s)

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E-mail

catalinmarculescu@gmail.com (personal);
catalin.marculescu@imt.ro (from work).

Nationality

Romanian.

Date of birth

29 May 1981.

Gender

Male.

Desired employment / Occupational field

**Microfluidic and Numerical Modeling Researcher - Interdisciplinary
Engineering**

Work experience

May. 2011 - Present

**National Institute for Research and Development in Microtechnologies – IMT
Bucharest**

Occupation or position held

Post-Doctoral Position in Laboratory of Micro and Nano Fluidics – L10.

Main activities and responsibilities

Design, model, simulate and test micro scale devices for microfluidic and lab-on-a-chip applications. As a member of the Micro and Nano Fluidic group I was/am working as a researcher/specialist at the following research grants:

Project **SOP-IEC**, O.2.1.2 No. 209, ID 665, *Microfluidic factory for assisted self-assembly of nanosystems* (MICRONANOFAB), 2010 – 2013, <http://www.imt.ro/MICRONANOFAB>.

Grant **PN2** (Parteneriate) no.12094 *Microfluidic biochip for rheological characterization of non-Newtonian bio fluids with application in diagnostic and medical treatment* (MELANOCHIP) (Biochip microfluidic pentru caracterizarea reologica a fluidelor biologice ne-newtoniene cu aplicatii in diagnoza si tratament medical), 2008 - 2011;

Grant **PN2** (Parteneriate) no. 72160 *Micro-electro-mechanic system with application in microsurgery reconstruction of the peripheral nerves* (RECONNECT) (Sistem micro-electro-mecanic cu aplicatii in reconstructia microchirurgicala a nervilor periferici), 2008 - 2011;

Name and address of employer

National Institute for Research and Development in Microtechnologies – IMT Bucharest
126A, Erou Iancu Nicolae street, 077190, Bucharest, ROMANIA

Type of business or sector

Research and Development

Principal subjects/occupational
skills covered

Microfluidic applications, Micro-PIV, Rheology, Microfabrication, Numerical Simulations and Modeling.

Sept.2010 – Apr. 2011	SC Inform Lykos SA
Occupation or position held	Project Manager
Main activities and responsibilities	<ul style="list-style-type: none"> Coordinating all the company departments in order to successfully deliver the clients' projects and requests Optimized the invoicing process for the projects under my supervision.
Name and address of employer	SC Inform Lykos SA, 347-363 Odai Str., 013605, Bucharest.
Type of business or sector	Services and Industry
Nov.2009 – Aug. 2010	Virtual-Ing SRL
Occupation or position held	CFD Consulting Engineer
Main activities and responsibilities	<ul style="list-style-type: none"> Performed several phenomenological modeling for projects in collaboration with national and international companies Performed consulting sessions with our partners concerning the use and application of FLUENT numerical code.
Name and address of employer	Virtual-Ing SRL, 68 Basarabia Blv., Bucharest
Type of business or sector	Mechanical or Industrial Engineering industry
Oct. 2005 – Oct. 2009	University Politehnica of Bucharest
Occupation or position held	PhD. Student in the field of Fluid Mechanics and Rheology in Reorom Laboratory.
Main activities and responsibilities	<p><u>2005 – 2008</u> Teaching Assistant for lab courses and exams in Faculty of Power Engineering (Energetica) under the supervision of Professors Corneliu Bălan and Diana Broboană;</p> <p><u>2008 & 2009</u> Research supervision bachelor students groups with the purpose of developing, understanding and presenting specific theme in the scientific manifestation of Fluid Mechanics Department.</p> <p><u>2007 – 2008</u> Project manager with CNCISIS sponsorship for the project: <i>Hydrodynamics' study of a chemical reactor for polymerization with applications for preceramic polymers technology</i> (15 months).</p> <p>As a member of the Reorom group I have worked as a researcher/specialist at the following research grants:</p> <p>Grant CEEX 2005 (INFOSOC no. 620/13.10.2005) <i>Research concerning the development of a computerized system for the modeling of the lubricants durability</i>, 2005 – 2008.</p> <p>Grant CARDIOCOMP CEEX 2006 (VIASAN no: 81/2006) <i>Computerized optimization of the diagnostical process, therapeutic intervention and prognosis of cardiovascular disease</i>, 2006 - 2008.</p> <p>Grant DIAPROGENDO CEEX 2006 (VIASAN no: 89/2006) <i>Diagnostically and prognostical implication of the endomicroscopic aspect of the microvascularisation of pre-malign and malign lesions of the superior digestive tube</i>, 2006 – 2008.</p>
Name and address of employer	University Politehnica of Bucharest, Faculty of Power Engineering, Hydraulics Department 313 Splaiul Independentei, 060042, Bucharest, ROMANIA
Type of business or sector	Educational and Research
Education and Training	
Name and type of organisation providing education	<p><u>2005 – 2009</u> University Politehnica of Bucharest, Faculty of Power Engineering, Hydraulics Department, Reorom Group, in co-tutelle with University Claude Bernard Lyon 1, Laboratory of Multimaterials and Interfaces.</p> <ul style="list-style-type: none"> PhD student in Fluid Mechanics and Rheology (with scholarship), obtaining a double diploma from both universities. Supervisors: Prof. Dr. Eng. Corneliu Balan and Prof. Philippe Miele PhD thesis: <i>Hydrodynamics' study of a chemical reactor for polymerization with applications for preceramic polymers technology.</i> <p><u>2000 - 2005</u> University Politehnica of Bucharest, Faculty of Engineering and Management of Technological Systems (IMST)</p> <ul style="list-style-type: none"> BEng in Mechanical Engineering
Summer schools	<p><u>2011</u> Summer school participant of <i>2nd Summer school of Rheology</i>, - Romanian Society of Rheology – Iasi, Romania;</p> <p><u>2011</u> Summer school participant of <i>5th International Summer School on Nanosciences and Nanotechnologies: Organic electronic and Nanomedicine</i> – Thessaloniki, Greece;</p> <p><u>2007</u> Summer school participant and organizer of <i>PolyCerNet 1st Annual School</i>, 23 – 27 September, Gura Humorului, Romania;</p>

Research stages 2007 & 2009 University Claude Bernard Lyon 1, Laboratory of Multimaterials and Interfaces.

Training courses 2008 Advanced Modeling Techniques using FLUENT.
2006 Numerical Methods in Fluid Dynamics and FLUENT Applications.

Scholarships 2005 – 2008 University *Politehnica* of Bucharest, Phd. Scholarship award holder;
2004 DAAD Scholarship for visiting technical Universities from Dresden, Berlin, Aachen, Weimar, Gottingen and Research Institute: DLR - Deutsche Zentrum für Luft- und Raumfahrt- Gottingen; BAM Polymertechnik – Berlin (Federal Institute for Materials Research and Testing), RWTH Aerodynamisches Institut und Lehrstuhl für Strömungslehre - Aachen (Institute of Aerodynamics and Chair of Fluid Mechanics).
2003 – 2004 Erasmus – Socrates Scholarship at Università degli studi di Cassino, Cassino, Italy.

Personal skills and competences

Mother tongue(s) **Romanian**

Other language(s) **English, French, Italian**

Self-assessment
 European level (*)

English

French

Italian

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C	2	C	2	C	2	C	2	C	2
B	1	B	1	A	2	A	2	B	1
B	1	B	1	A	2	A	2	B	1

(*) [Common European Framework of Reference for Languages](#)

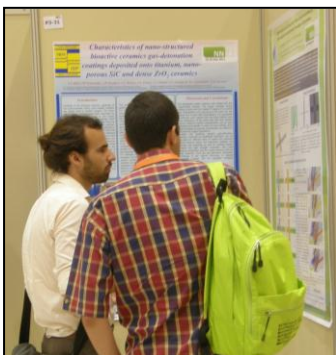
Computer skills and qualifications

CAD software: AutoCAD (2D & 3D), **Inventor**, Catia;
 Programming language: **LabView**, Mathematica, **Origin**;
 Modeling and Simulation Software: **FLUENT & Gambit**, COMSOL Multiphysics;
 Other software: Microsoft Office, Tecplot, Image-Pro plus, PolyView, Adobe Photoshop, Joomla, Php and MySQL;
2002 Language proficiency certificate for French (Politehnica University of Bucharest, Foreign Languages Department).
2004 Language proficiency certificate for Italian Beginner level (University of Cassino, Italy);
2005 Language proficiency certificate for English (Politehnica University of Bucharest, Foreign Languages Department).

Memberships

From 2009 Member of the ROMANIAN SOCIETY OF RHEOLOGY.

Conference participation



2011 (July) *8th International Conference on Nanosciences and Nanotechnologies, NN11, Thessaloniki, Greece* – posters presentation
Poster title: - Melanoma cells apoptosis induced by magnetic hyperthermia
 - Experimental and numerical flow characterization of microfluidic hydrodynamic focusing of liposomes

2008 *International Conference on Numerical Analysis and Applied Mathematics (ICNAAM 2008), Kos, Greece* – presentation
Presentation title: Theoretical, experimental and numerical investigation of the flow generated by a 3D spinning disk

2008 *The 5th conference of Hydro-Energetics in Romania, Dorin Pavel, Bucharest*
Title: Visualizations and numerical techniques in the complex flows analysis

2007 *ANSYS & FLUENT User Group Meeting Proceedings, Sinaia* – presentation
Presentation title: Numerical solutions of a 3D spinning disk, using different geometry and mesh generation techniques

2006 *The 4th conference of Hydro-Energetics in Romania, Dorin Pavel, Bucharest*
Title: Dinamica fluidelor vâscoase în mișcări de rotație

2006 *The XXXIth national fluid mechanics, mathematical modeling, nonlinear dynamics and their technical applications, Brasov* – open presentation
Presentation title: Flow visualizations and numerical modeling of viscous fluids in rotational motions

List of publications

ISI Publications:

Mărculescu, C., Bălan, C., *Theoretical, experimental and numerical investigation of the flow generated by a 3D spinning disk*, International Conference on Numerical Analysis and Applied Mathematics 2008, AIP Conference Proceedings 1048, p. 787-791.

Publications in Specialty Journals:

Broboană, D., Călin, A., Ou Yang, T., Bălan, C. M., Kadar, R., **Mărculescu, C.**, Bălan, C., *Visualizations and numerical techniques in the complex flow analysis*. U.P.B. Sci. Bull., Series D, vol. 70, No. 4, pp. 23-34, 2008 (ISSN 1454-2358).

Broboană, D., **Mărculescu, C.**, Kadar, R., Bălan, C., *Experimental and numerical simulations of 3D branching flows, with application to the modeling of blood flow in arteries*, Timisoara Medical Journal, Volume 56, Supplement 4, 2006, p. 23-29 (ISSN 1583-5251).

Mărculescu, C., Bălan, C., *Mixing Process in Rotating Motions*, U.P.B. Sci. Bull., Series D, Vol. 72, Iss. 1, 2010 (ISSN 1454-2358).

Broboană, D., Călin, A., **Mărculescu, C.**, Bălan, C., *Vortical structures at the interface*, 2nd Workshop on Vortex Dominated Flows – Achievements and Open Problems, Sci. Bull. of U.P.T., Tom 51(65), Fascicola 3, 2008, Bucharest, Romania, 2006, p. 63-67 (ISSN 1224-6077).

Mărculescu, C., Bălan, C., *Numerical solutions in rotational flows using different mesh generation techniques*, Proceedings of 4th Workshop on Vortex Dominated Flows, Sci. Bull. of U.P.T., Tom 53(67), Fascicola 3, 2008, p. 143-147 (ISSN 1224-6077).

Proceedings from national and international conferences:

Avram, M., Petrescu, I., Volmer, M., Bălan, C. M., **Mărculescu, C.**, Avram, A., *Cellular uptake of gold covered maghemite superparamagnetic nanoparticles and their effects on mouse melanoma B16 cells*, Euromat 2011, Montpellier, France, September 12-15. A 24- O - pm 1 – 3.

Mărculescu, C., Bălan, C. M., Avram, A., Avram, M., *Experimental and numerical flow characterization of microfluidic hydrodynamic focusing of liposomes*, International Conference on Nanosciences and Nanotechnologies, NN11, Thessaloniki, Greece, July 12-15, pp. 459, 2011.

Avram, M., Schiopu, V., Avram, A., **Mărculescu, C.**, Bălan, C.M., Popescu, A., Volmer, M., *Melanoma cells apoptosis induced by magnetic hyperthermia*. International Conference on Nanosciences and Nanotechnologies, NN11, Thessaloniki, Greece, July 12-15, pp. 453, 2011.

Broboană, D., **Mărculescu, C.**, Bălan, C., *Pressure loss coefficient of a sudden-expansion planar geometry for, steady, laminar and non-isothermal flow regime*, International Conference Energy – Environment CIEM, Bucuresti, 2005.

Călin, A., **Mărculescu, C.**, Hampe, D., Broboană, D., *Experimental and numerical modeling of interface evolution between a pure viscous fluid and weakly elastic viscous liquid*, 3rd Annual European Rheology Conference, Hersonisos, Crete, Greece, 2006.

Mărculescu, C., Bălan, C., *Dinamica fluidelor vâscoase în mișcări de rotație*, A patra conferința a hidroenergeticienilor din Romania, Dorin Pavel, Bucuresti, 2006, p. 205-210.

Mărculescu, C., Kadar, R., *Flow visualizations and numerical modeling of viscous fluids in rotational motions*, The XXXI-th National Conference “Caius Iacob” of fluid mechanics, mathematical modeling, nonlinear dynamics and their technical aplicațiuni, Brașov, 2006, p. 249-261.

Mărculescu, C., Bălan, C., *Numerical solutions of a 3D spinning disk, using different geometry and mesh generation techniques*, ANSYS & FLUENT User Group Meeting Proceedings, Sinaia, 2007.

Books or books chapters

Bălan, C., **Mărculescu, C.**, Călin, A., *Modeling of interfaces between immiscible fluids with the VOF method*. Vortex Flow and Applications (ISBN 978-973-687-659-2), Eurostampa Publishing, Timișoara, Romania, 2008, p. 195-202.

Interests	Scuba diving, music, travels, hiking, cooking and reading.
Driving licence	Driving licence – B category.