

# Europass Curriculum Vitae



## Personal information

First name(s) / Surname(s) **NAE Catalin**  
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 E-mail [cnae@incas.ro](mailto:cnae@incas.ro)  
 Nationality Romanian  
 Date of birth  
 Gender Male

## Work experience

### Dates 1988 – 1990

Occupation or position held **CS, Research scientist**  
 Main activities and responsibilities CFD and flight dynamics  
 Name and address of employer INCREST - ICSITAv – IMFDZ (Romania)  
 Type of business or sector Aerospace engineering

### Dates 1990 – 1997

Occupation or position held Lecturer  
 Main activities and responsibilities Lecturer in mechanics and aircraft design  
 Name and address of employer Univ. Politehnica Bucharest, Aerospace Engineering Dept.  
 Type of business or sector Aerospace engineering

### Dates 1990 – 2000

Occupation or position held **CS-III, Senior research scientist, head of CFD Department**  
 Main activities and responsibilities Project manager  
 Name and address of employer INCAS - National Institute for Aerospace Research "Elie Carafoli" (Romania)  
 Type of business or sector Aerospace engineering

### Dates 2000 – 2001

Occupation or position held Senior adviser, CFD Department  
 Main activities and responsibilities Project manager  
 Name and address of employer FZJ-Forschungszentrum Juelich, Germany  
 Type of business or sector R&D in physics and life sciences

### Dates 2000 – 2007

Occupation or position held **CS-II, Senior research scientist, head of Subsonic Wind Tunnel Department**  
 Main activities and responsibilities Wind Tunnel Manager, Project manager  
 Name and address of employer INCAS - National Institute for Aerospace Research "Elie Carafoli" (Romania)  
 Type of business or sector Aerospace engineering

### Dates 2007 – present

Occupation or position held **CS-I, INCAS President & CEO**  
 Main activities and responsibilities President of the Board & CEO of INCAS  
 Name and address of employer INCAS - National Institute for Aerospace Research "Elie Carafoli" (Romania)  
 Type of business or sector Aerospace engineering

## Education

Dates	<b>1982 – 1988</b>
Title of qualification awarded	<b><i>Master in Aerospace Engineering</i></b>
Principal subjects/occupational skills covered	Flow physics, aircraft design, CFD
Name and type of organisation providing education and training	University Politehnica Bucharest, Aerospace Engineering Dept.
Level in international classification	Master degree
Dates	<b>1990 – 1995</b>
Title of qualification awarded	<b><i>Master in Mathematics</i></b>
Principal subjects/occupational skills covered	PDE, Algebra, Numerical simulation, CFD
Name and type of organisation providing education and training	University of Bucharest, Mathematics Dept.
Level in international classification	Master degree
Dates	<b>1992 – 1997</b>
Title of qualification awarded	<b><i>PhD</i></b>
Principal subjects/occupational skills covered	Aerospace engineering, CFD
Name and type of organisation providing education and training	University Politehnica Bucharest
Level in international classification	PhD Diploma
Dates	<b>1999 – 2000</b>
Title of qualification awarded	<b><i>Post doc</i></b>
Principal subjects/occupational skills covered	Aerospace engineering, CFD, active flow control
Name and type of organisation providing education and training	University of Glasgow, Aerospace Engineering Dept.
Level in international classification	Post-doc Diploma

## Training

- NATO/DAAD Senior Fellowship in High Performance Supercomputing, Germany, 2002
- Royal Society Fellowship – UK, 1999
- Dassault Aviation – France, visiting scientist, 1999
- von Karman Institute for Fluid Dynamics - Belgium, visiting scientist, 1998
- INRIA, visiting scientist - France, 1998
- NASA, visiting scientist, Johnson Space Center, USA, 1996
- Lean Management in R&D , Univ. Hertfordshire, UK, 2001

## Personal skills and competences

Mother tongue(s)	<b>Romanian</b>				
Other language(s)	<b>English, French, German, Italian</b>				
Self-assessment	<b>Understanding</b>		<b>Speaking</b>		<b>Writing</b>
<i>European level</i>	Listening	Reading	Spoken interaction	Spoken production	
<b>English</b>	C2	C2	C2	C2	C2
<b>French</b>	C2	C2	C2	C2	C2
<b>German</b>	B2	C1	B2	B2	B1
<b>Italian</b>	C2	C2	C2	C2	C2

<p>Organisational skills and competences</p>	<ul style="list-style-type: none"> <li>• <b>President of the Board and CEO of INCAS - National Institute for Aerospace Research "Elie Carafoli" since 2007</b></li> <li>• President of EREA (European Research Establishments in Aeronautics Association) 2018-2019</li> <li>• President of STAI (Supersonic Tunnel Association International) since 2017-2019</li> <li>• Vice-President of Governing Board of JTI Clean Sky 1 - 2011 - 2013</li> <li>• Member of JTI Governing Board Clean Sky 1&amp;2 since 2008</li> <li>• Member of ACARE Plenary (Advisory Council for Aeronautical Research in EU), since 2006</li> <li>• Co-Chair of ACARE-IRG (Advisory Council for Aeronautical Research in EU), since 2017</li> <li>• Member of the Board of ROSA - Romanian Space Agency since 2008</li> <li>• Director for Advanced Research Center CSA-INCAS since 2004</li> <li>• Member of CCCDI – Romanian Advisory Council for R&amp;I since 2013</li> <li>• Romania national expert in PC6/7-Transport/H2020 since 2006</li> <li>• EU FP7/H2020 Rapporteur for “Research for the Benefit of SMEs”</li> <li>• EU FP6/FP7/H2020 expert for Transport (including Aerospace) and ITC from 2007</li> </ul>
<p>Project management in EU FP6/FP7/H2020</p>	<p><b>(funding for INCAS partner contribution)</b></p> <p><b>EU FP5 projects</b></p> <ul style="list-style-type: none"> <li>□ EXPRO, STREP (107,500Euro) 2001-2004</li> </ul> <p><b>EU FP6 projects</b></p> <ul style="list-style-type: none"> <li>□ UFAST - Unsteady Effects in Shock Wave Induced Separation, STREP (657,500Euro) 2005 - 2008</li> <li>□ CESAR - Cost Effective Small Aircraft, IP (1,745,000Euro) 2006 - 2009</li> <li>□ AVERT - Aero Validation of Emission Reducing Technologies, STREP (975,000Euro) 2006 – 2009</li> </ul> <p><b>EU FP7 projects</b></p> <ul style="list-style-type: none"> <li>□ JTI Clean Sky - SFWA - Smart Fixed Wing Aircraft (18,000,000Euro) 2008 - 2015</li> <li>□ JTI Clean Sky - GRA - Green Regional Aircraft (5,000,000Euro) 2008 - 2015</li> <li>□ ESPOSA - Efficient Systems and Propulsion for Small Aircraft, L2 project (475,000Euro) 2010-2014</li> <li>□ HAIC – High Altitude Icing Crystals, L2 project (1,325,000Euro) 2011 - 2014</li> <li>□ CEARES - (SSA - CA project in FP7) (127,000Euro) 2010 - 2012</li> <li>□ RESTARTS - (SSA - CA project in FP7) (45,700Euro) 2010 - 2012</li> <li>□ SAT –Rdmp - (CSA - SA project in FP7) (27,650Euro) 2009 - 2012</li> <li>□ ATLLAS-II – Aero-Thermo Loads on Lightweight Advanced Structures II, (242,330Euro) 2010 - 2014</li> <li>□ AFloNext – "2nd Generation Active Wing" – L2 project in FP7, (1,087,600Euro) 2013 - 2016</li> <li>□ JTI Clean Sky2 – FastRotorcraft IADP- RACER (7,500,000Euro) 2015 - 2020</li> </ul>
<p>Project management in national PNCD-2/3</p>	<ul style="list-style-type: none"> <li>□ 10 R&amp;D grants in PNCDI (7 in AEROSPATIAL Program) – Project Manager</li> <li>□ 13 R&amp;D grants in PNCD-2&amp;3 – Project Manager</li> <li>□ 7 R&amp;D grants in STAR Program (2012) – Project Manager</li> <li>□ 13 R&amp;D grants in PNCD – WP Leader</li> </ul>
<p>Awards and achievements</p>	<ul style="list-style-type: none"> <li>• Member of Académie de l’Air et de l’Espace, 2018</li> <li>• Ordinul Meritul Cultural in grad de Cavaler, 2008</li> <li>• DAAD Senior Fellowship award in 2002</li> <li>• NATO/Royal Society research award in 1999</li> <li>• ECMI-96 International Award ( European Consortium for Mathematics in Industry ), 1996</li> <li>• ICIAM-94 Award in 1995 (Int. Consortium for Industrial and Applied Mathematics ), 1995</li> <li>• “100 for Aviation” Hall of Fame, 2012</li> <li>• 8 Excellence Awards in Romanian national PNCD/PNCD2</li> <li>• Third Price at International Olympics in Mathematics for students in 1985</li> <li>• Romanian National Merit Scholarship 1985-1988</li> </ul>
<p>Computer skills and competences</p>	<p>HPC - high performance computing, GRID &amp; CLOUD computing, programming (FORTRAN, C/C++, Java), MS/OpenOffice, Windows/Linux/Unix/...</p>

### 1. List of Patents and Industrial Models

- A 2010 01168/2010 "TEHNOLOGIE DE OPTIMIZARE A PROFILELOR AERODINAMICE PRIND CONTROLUL ACTIV", autori : NAE CATALIN, RO; CORNELIU IOAN STOICA, RO;
- A 2010 01169/2010 "DISPOZITIV DE CREARE A JETULUI SINTETIC", autori :NAE CATALIN, RO; CORNELIU IOAN STOICA, RO;
- A 2011 00481 "MECANISM PENTRU ACTIONARE KRUGER-FLAP", autori : NAE CATALIN, RO; TURCAN VASILE, RO;
- A 2011 00569 "PROCEDEU DE IMBUNATATIRE A CONFORTULUI TERMIC SI REDUCERE DE NOXE LA NIVELUL SOLULUI", autori : NAE CATALIN, RO; TURCAN VASILE, RO; MARIN NICUALE, RO;
- A 2011 00630 "INSTALATIE EOLIANA CU AX VERTICAL PENTRU EXTRAGEREA APEI", autori : NAE CATALIN, RO; BOGATEANU RADU, RO; NILA ION, RO;
- F 2010 0451 "AVION AEROTAXI", autori :NAE CATALIN, RO; INCAS, RO
- F 2012 0618 "AERONAVA HELENA" autori : NAE CATALIN, RO; INCAS, RO

### 2. Lists of Papers (relevant selection)

- Nae C., On Airfoils at High Angles of Attack , AIAA Paper 96-0368, USA, 1996
- Nae C. et. Al. Pressure Variation on Circulatory System Parameter Monitored with Thermography, Ostereich Thermologie Journal, 1997
- Nae C., Wind Tunnel Data Analysis using Image Processing, AIAA Paper 97-2219, USA, 1997
- Nae C., Synthetic Jets Influence on NACA 0012 Airfoil at High Angles of Attack, AIAA Paper 98-4523, USA, 1998
- Nae C, Flow Solver and Anisotropic Mesh Adaptation using a Change of Metric based on Flow Variables, AIAA Paper 2000-2250, USA, 2000
- Nae C, Unsteady Flow Control using Synthetic Jet Actuators, AIAA Paper 2000-2402, USA, 2000
- Nae C, Active Flow Control over a Circular Cylinder, ICA 2.106, ICAS 2000, Harrogate, UK, 2000
- Nae C, Numerical Simulation of the Synthetic Jet Actuator, ICA 0.266, ICAS 2000, Harrogate, UK, 2000
- Rehm, W., Nae, C., Jahn, W., Vogelsang, R. and Wang, B. CFD Simulations of Turbulent Reactive Flows with Supercomputing for Hydrogen Safety. Computer Physics Communications, CPC 147, Elsevier, U.K., 2003
- Nae C, WIND TUNNEL INVESTIGATION FOR OSCILLATORY BLOWING ON HIGH LIFT SYSTEMS, ICA 3.2.1, ICAS 2010, UK, 2010
- C. Nae, "Experimental Evaluation for a New Active Flow Control Technology for Buffeting Control using Synthetic Jet Actuators", Journal of Fluids and Structures, ELSEVIER, ISSN: 0889-9746, submitted August 2011, accepted June 2012
- C. Nae, F. Munteanu, "The influence of Reynolds and Mach numbers on SWBLI – experimental investigations for AFC", The Aeronautical Journal, Paper No. 3542. Manuscript sent 16 March 2012, accepted dec. 2012
- C. Nae, "Advanced Aerodynamic Technologies for Future Green Regional Aircraft", INCAS Bulletin. 6. 10.13111/2066-8201.2014.6.S1.11., 2014
- Barbarino, Mattia & Dimino, Ignazio & Carozza, Antonio & Nae, Catalin & Stoica, C & Pricop, V & Peng, S.H. & Eliasson, Peter & Grundestam, O & Tysell, L & Davidson, L & Eriksson, L.E. & Yao, Huadong & Ben-Khelil, S & Moens, Frederic & Le Garrec, T & Mincu, D.C. & Simon, Frank & Manoha, E & Averardo, M.A. Airframe Noise Reduction Technologies Applied to High-Lift Devices of Future Green Regional Aircraft, 2014
- PRICOP, Mihai-Victor & BOȘCOIANU, Mircea & Nae, Catalin & Gabriel COJOCARU, Marius. MICROFIGHTER AS AN ALTERNATIVE TO FOURTH GENERATION FIGHTER PLANES. SCIENTIFIC RESEARCH AND EDUCATION IN THE AIR FORCE. 19. 177-186. 10.19062/2247-3173.2017.19.1.19., 2017

### 3. Lists of Conference Papers (selection)

- Nae C. , Rodan, G. Recognition of patterns used in 3D-shaped bodies , Proceedings of the " 9th International Conference on Thermal Engineering and Thermography, Budapest, Hungary, M.V.K., pag. 193-196.
- Nae C., Flow field analysis from combined computer digital processing of schlieren pictures and thermography , GAMM- ICIAM 95 Proceedings, p 1086-1088, Hamburg, Germany.
- Nae C., Rodan, G. Flow field analysis from computer processing of schlieren picture and thermography ", Proceedings of the 9th International Conference on Thermal Engineering and Thermography, Budapest, Hungary, M.V.K., pag. 128-135
- Nae C., Rodan, G. Numerical processing of thermal pictures using Abel inverse transform, Proceedings of the" Conference on Thermal Imaging, Bath, U.K. 25 oct. 1994, Willey Press., pag. 89-96
- Nae C., Airfoils at High Angles of Attack and Post-Stalling Behavior , Proceedings of the 3th ICIAM 1996 Conference, Copenhaga, 1996
- Nae C., Analyse de l'écoulement supersonique en utilisant des images schlieren digitales et thermographie, 13-eme Congres Francais de Mecanique, Poitiers, France, 1997
- Nae C., Abel Inverse Transform for Supersonic Flows, Proceedings of the 8-th International Symposium on Flow Visualization, Sorrento, Italy, 1998

- Nae C., Lift Control at High Angles of Attack using Synthetic Jets, Proceeding of the 10-th Conference of the European Consortium for Mathematics in Industry, ECMI 98, Goteborg, Sweden, 1998
- Nae C., Solution Adaptive Approach using Unstructured Meshes and Flowfield Parameters, Proceedings of ICIAM 99, Edinburgh, UK, 1999
- Nae C., Flow Control and Shape Optimization using Synthetic Jets, Proceeding of the Optimization Conference, Metz, France, 1999
- Nae C., Flow Control using Fluid Actuators, Proceeding of the IMACS 2000, Lausanne, Switzerland, 2000
- Nae C., Efficient LES using Beta-Gamma Scheme and Wall Laws, ICFD 2001, Oxford, U.K., 2001
- W. Rehm, C. Nae, W. Jahn, R. Vogelsang, B. L. Wang,, CFD Simulations of Turbulent Reactive Flows with Supercomputing for Hydrogen Safety, CCP 2001, Aachen, Germany, 2001
- Rehm, W., Nae, C. and Wang, B. Modern Computational Fluid Dynamics of Complex Flows with Supercomputing for Safety Research. Intern.Conf. SNA-2003, Paris, France.
- Rehm W., Wang B. Binninger B. Nae C., "Modern Field Code Cluster of Fluid Dynamics and Structure Mechanics with Meta-Computing Grids for Safety and Environment Research Studies", 4th European LS-DYNA Users Conference, 2003
- C. Nae, M.V. Pricop, E. Munteanu, "Buffeting Alleviation using Active Flow Control", 2nd EUCASS, Brussels, Belgium, 1-6 July, 2007
- Predescu M., Bejinariu A., Nedelcu A., Mitroi O., Nae C., Pricop M.V., Craciunescu A., Wind Tunnel Assessment of Small Direct Drive Wind Turbines with Permanent Magnets Synchronous Generators, ICREPQ'08 - INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY AND POWER QUALITY, Santander, 12-14 March, 2008
- C. Nae, F. Munteanu, "Prediction and Experimental Validation of Buffeting Phenomena", 8th World Congress on Computational Mechanics WCCM8, 5th European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS 2008, Venice, Italy, 30 June - 4 July 2008
- F. Munteanu, C. Nae, N. Ivanovici, "Unsteady Flow Control in INCAS Supersonic Wind Tunnel", 114th STAI Conference, ITAM - Novosibirsk, Russia, 2011
- C. Nae, M.V. Pricop, G. Cojocaru, "High Speed Flow Control using SJ Actuators", 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria, September 10-14, 2012

#### 4. Lists of Papers in INCAS Bulletin (*DOAJ, Copernicus, ProQuest*)

- C. Nae, " Unified formulation for URANS and LES in DxUNSp code", INCAS BULLETIN, Volume 1 Issue 1/2009, pp.55-63, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- Lancranjan, C. Nae, M.V. Pricop, D. Damian, M. Udrea, " Air Flow and Environmental Wind Visualization Using a CW Diode Pumped Frequency Doubled Nd:YAG Laser", INCAS BULLETIN, Volume 1 Issue 1/2009, pp.43-50, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- Lancranjan, C. Nae, P. Copaescu, M. Panait, " A Numerical Model of the Laser Light Intensity Transversal Distribution into Undeformed/ Deformed Optical Fibers", INCAS BULLETIN, Volume 1 Issue 2/2009, pp.102-115, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- C. Nae, M.V. Pricop, "Evaluation of High Lift System with Blowing in 2.5D Configuration", INCAS BULLETIN, Volume 2 Number 2/2010, pp. 75-83, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- C. Nae, "Local correlations for flap gap oscillatory blowing active flow control technology", INCAS BULLETIN, Volume 2 Number 3/2010, pp. 61-68, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- C. Nae, "Two phase flow models in DxUNSp code platform", INCAS BULLETIN, Volume 3 Issue 3/2011, pp. 91-101, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- C. Nae, "CFD Analysis for Industrial Applications using xGrid Environment", INCAS BULLETIN, Volume 3 Issue 4/2011, pp.77-88, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201
- M.V. Pricop, C. Stoica, C. Nae, F. Munteanu, J-P. Rosenblum, A. Bobonea, I. Brinza, "Wind Tunnel Testing of Passive High-Lift Systems", INCAS BULLETIN, Volume 4 Issue 1/2012, pp.67-75, (online) ISSN 2247-4528, (print) ISSN 2066-8201, ISSN-L 2066-8201

#### 5. Lists of Books (*contributions*)

- C. Nae, F. Munteanu, "Transonic Interactions on Biconvex Airfoil" – Chapter 6, Springer series – Notes on Numerical Fluid Mechanics and Multidisciplinary Design (NNFM)", ISBN 978-3-642-03003-1, 2009
- F. Munteanu, C. Nae, "Experiments on Biconvex Airfoil for UFAST – Data Bank" – Chapter 5, IMP PAN Publishers, ISBN 978-83-88237-46-1, Gdansk 2009

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