# CURRICULUM VITAE

## *Personal details*

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| First Name | Yannis |
| Last Name | Papaharilaou |
| Date of Birth | 29/06/1970 |

## *Affiliation*

Foundation for Research and Technology – Hellas
Institute of Applied and Computational Mathematics,
Numerical Analysis, Computational Fluid Dynamics and Scientific Computing Group,
Vassilika Vouton, P.O. Box 1385
GR-71110, Heraklion, Crete, Greece
Tel. +30 2810391783
e-mail: yannisp@iacm.forth.gr
web: `http://thales.iacm.forth.gr/~yannisp`

## *Education*

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|---|---|
| Nov 1997 - Mar 2002 | PhD in Biomedical Engineering<br>Department of Aeronautics, Imperial College London, UK<br>Thesis Title: Studies of Fluid Flow in Arterial Bypass Grafts with Magnetic Resonance Imaging<br>Thesis Advisor: Prof. Denis Doorly |
| Sept 1996 - Sept 1997 | MSc in Engineering and Physical Science in Medicine (awarded with Distinction)<br>Department of Bioengineering, Imperial College London, UK<br>Thesis Advisor: Prof. Kim Parker |
| Aug 1994 - Jul 1996 | Masters in Business Administration (MBA)<br>Baruch College, City University of New York, USA<br>Major : Computer Information Systems |
| Oct 1988 - Mar 1994 | Diploma in Electrical Engineering, Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece<br>Major : Computers & Electronics |

## *Academic Awards*

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| 2005 - 2006 | Post Doctoral Fellowship awarded by the Greek State Scholarships Foundation |
| 1999 - 2000 | Triangle Trust PhD studentship awarded by the University of London |
| 1996 - 1999 | Post graduate studentship awarded by the 'Lillian Voudouri' Foundation, Athens, Greece |

Updated May 2019

### *Academic Positions*

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|---|---|
| May 2019 - present | Research Director,<br>Institute of Applied and Computational Mathematics,<br>Foundation for Research and Technology – Hellas (FORTH) |
| Jul 2012 - May 2019 | Principal Researcher,<br>Institute of Applied and Computational Mathematics,<br>Foundation for Research and Technology – Hellas (FORTH) |
| Nov 2007 - Jul 2012 | Associate Researcher,<br>Institute of Applied and Computational Mathematics,<br>Foundation for Research and Technology – Hellas (FORTH) |
| Sept 2003 - Nov 2007 | Post Doctoral Research Fellow, Numerical Analysis Group,<br>Institute of Applied and Computational Mathematics, Foundation for Research and Technology – Hellas |
| Oct 2003 - Sept 2006 | Visiting Assistant Prof., Medical School, University of Crete, Greece.<br>Course Taught: Hemodynamics |
| Nov 1997 - Apr 2002 | Research Associate, Biofluid Dynamics and MR Imaging Group, Department of Bioengineering, Imperial College London, UK |

### *Funded Research Projects*

**@IACM-FORTH** [Budget: Total/FORTH]

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| Dec 2017 - Dec 2020 GSRT | *Studying mechanisms of cellular response to shear stress and 3D substrate topography* In collaboration with the Institute of Electronic Structures and Laser. Advanced research activities in biomedical technology. VITAD. Joint Research and Technology Programmes, General Secretariat for Research and Technology (GSRT), Greece. (Principal Investigator)[€30K] |
| Dec 2014 - Dec 2016 GSRT | *Bio inspired computational simulations at cellular and organ scales.* Development of interdisciplinary research activities in systems biology. BIOSYS. Joint Research and Technology Programmes, General Secretariat for Research and Technology (GSRT), Greece. (Principal Investigator)[€70K] |
| July 2016 - July 2017 EPFL | *Hemodynamic factors associated with the initiation of aortic aneurysm disease* EPFL FORTH collaborative grant. (Principal Investigator)[€17K]. |
| Mar 2012 - Mar 2015 GSRT | *AAA Risk Assessment-Integrating morphologic, biomechanic, molecular and clinical risk factors to improve decision making in the management of abdominal aortic aneurysm disease*<br>General Secretariat for Research and Technology (GSRT), Greece. Supporting Post-Doctoral Researchers. (Scientific Advisor of Dr. Eleni Metaxa)[€150K]. |

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| Dec 2013 - Dec 2015 GSRT | *Simulations of High Enthalpy Compressible Turbulent Flows.* France - Greece, Joint Research and Technology Programmes, General Secretariat for Research and Technology (GSRT), Greece. (Co PI with John Ekaterinaris)[€30K] |
| Mar 2011 - Mar 2013 RPF | *Medical Diagnosis Support Tool for Detailed Morphology and Hemodynamic Assessment of the Carotid Bifurcation at Different Head Postures* Research Promotion Foundation, Cyprus. In collaboration with the Cyprus University of Technology (Coordinator) and the University of Cyprus (Co-PI with Prof. A. Anayiotos)[€170/45K]. |
| Dec 2010 - Dec 2012 GSRT | *Image based computational models for patient specific carotid arterial plaque rupture risk estimation.* France - Greece, Joint Research and Technology Programmes, General Secretariat for Research and Technology (GSRT), Greece. (Principal Investigator)[€20K] |
| Apr 2009 - Jun 2014 ESA | *A Study on Polarizable and Magnetizable Fluids - Phase II.* European Space Agency (ESA) - European Space Research and Technology Centre (ESTEC). (Principal Investigator)[€85K] |
| Apr 2008 - Dec 2008 ESA | *A Study on Polarizable and Magnetizable Fluids - Phase I.* ESA - ESTEC. (Principal Investigator)[€15K] |
| Oct 2006 - Oct 2008 GSRT | *The electronic meta-health record – an integrated approach in providing e-health services.* Peripheral innovation pole of Crete. In collaboration with ICS-FORTH (Coordinator), IMBB-FORTH and the Technical University of Crete (Co-PI)[€120/20K]. |
| Nov 2006 - Oct 2007 GSRT | *Large scale fluid dynamics GRID-based computations in Aerodynamics and Biomechanics.* GRID-APP (Co-PI with Prof. John Ekaterinaris) [€55K]. |
| Jan 2006 - Jun 2009 GSRT | *Clinical, experimental and computational investigation of the evolution of hemodynamics in aneurysms and synthetic vascular grafts of the abdominal aorta and development of advanced visualization tools for clinical management support.* PENED 2003. In collaboration with the Medical School, Division of Vascular Surgery and the Dept. of Mathematics Univ. of Crete and the Mech. Eng. Dept. NTUA (Co-PI with Prof. Asterios Katsamouris) [€170/35K]. |

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| Mar 2006 - Oct 2007 RPF | *Image based patient specific hemodynamic simulation of arterial geometries.* Research Promotion Foundation, Cyprus. In collaboration with the Dept. of Mathematics University of Cyprus and the Bioengineering Dept. University of Alabama at Birmingham, USA (Co-PI) [€45/15K] |
| | **@Imperial College London, UK** |
| 1996-1998 | *Effects of smoking on arterial distensibility.* PI: Prof. Colin Caro. Funded by the UK Department of Health. |
| 1998-2000 | *Effect of geometry on arterial bypass graft hemodynamics.* PI: Profs. Colin Caro and Denis Doorly. Funded by the Garfield Weston Foundation and General Electric R&D U.S.A. |
| 2000-2003 | *Geometry Characterisation of Peripheral Bypass Grafting.* PI: Profs Colin Caro, Denis Doorly, Spencer Sherwin. Funded by the Henry Smith's Kensington Estate Charity |

### *Research Interests*

Fluid Dynamics and Computational Modelling with Application to Cardiovascular Flows, Computational Biomechanics, Magnetic Resonance Imaging of Flow, Medical Image Processing, Magnetohydrodynamics of Blood Flow, Blood Rheology

### *Books and Chapters*

[B1] A.Anayiotos and **Y. Papaharilaou**. Vascular Hemodynamics of the Carotid Bifurcation and its relation to Arterial Disease. Chapter In: Ultrasound and Carotid Bifurcation Atherosclerosis, Editors: A.N Nicolaides, Kirk W. Beach, Efthivoulos Kyriacou, Constantinos S. Pattichis. Springer-Verlag, London. 2012.

## Publications in Journals

[J1] K. Tzirakis, N. Kontopodis, E. Metaxa, C.V. Ioannou, and Y. Papaharilaou. "Spatial Distribution of Abdominal Aortic Aneurysm Surface Expansion and Correlation With Maximum Diameter and Volume Growth". In: *Annals of Vascular Surgery* (2019). In press.

[J2] E. Metaxa, K. Tzirakis, N. Kontopodis, C.V. Ioannou, and Y. Papaharilaou. "Correlation of Intraluminal Thrombus Deposition, Biomechanics, and Hemodynamics with Surface Growth and Rupture in Abdominal Aortic Aneurysm—Application in a Clinical Paradigm". In: *Annals of Vascular Surgery* 46 (2018). cited By 1, pp. 357–366.

[J3] N. Kontopodis, E. Metaxa, K. Pagonidis, C. Ioannou, and Y. Papaharilaou. "Deformation and distensibility distribution along the abdominal aorta in the presence of aneurysmal dilatation". In: *Journal of Cardiovascular Surgery* 58.1 (2017). cited By 2, pp. 72–79.

[J4] E. Metaxa, I. Iordanov, E. Maravelakis, and Y. Papaharilaou. "A novel approach for local abdominal aortic aneurysm growth quantification". In: *Medical and Biological Engineering and Computing* 55.8 (2017). cited By 1, pp. 1277–1286.

[J5] K. Tzirakis, Y. Kamarianakis, E. Metaxa, N. Kontopodis, C.V. Ioannou, and Y. Papaharilaou. "A robust approach for exploring hemodynamics and thrombus growth associations in abdominal aortic aneurysms". In: *Medical and Biological Engineering and Computing* 55.8 (2017). cited By 1, pp. 1493–1506.

[J6] N. Aristokleous, N.G. Kontopodis, K. Tzirakis, C.V. Ioannou, and Y. Papaharilaou. "Hemodynamic impact of abdominal aortic aneurysm stent-graft implantation-induced stenosis". In: *Medical and Biological Engineering and Computing* 54.10 (2016). cited By 8, pp. 1523–1532.

[J7] C.V. Ioannou, N. Kontopodis, E. Georgakarakos, E. Kehagias, E. Metaxa, S. Lioudaki, Y. Papaharilaou, and D. Tsetis. "Routine use of an aortic balloon to resolve possible inflow stenosis induced by the inflatable ring fixation mechanism of the Ovation endograft". In: *Radiologia Medica* 121.11 (2016). cited By 1, pp. 882–889.

[J8] K. Tzirakis, L. Botti, V. Vavourakis, and Y. Papaharilaou. "Numerical modeling of non-Newtonian biomagnetic fluid flow". In: *Computers and Fluids* 126 (2016). cited By 3, pp. 170–180.

[J9] A.Z. Valant, L. Ziberna, Y. Papaharilaou, A. Anayiotos, and G.C. Georgiou. "The influence of oxygen concentration on the rheological properties and flow of whole human blood". In: *Rheologica Acta* 55.11-12 (2016). cited By 1, pp. 921–933.

[J10] N. Kontopodis, E. Metaxa, Y. Papaharilaou, E. Tavlas, D. Tsetis, and C. Ioannou. "Advancements in identifying biomechanical determinants for abdominal aortic aneurysm rupture". In: *Vascular* 23.1 (2015). cited By 7, pp. 65–77.

[J11] E. Metaxa, N. Kontopodis, K. Tzirakis, C.V. Ioannou, and Y. Papaharilaou. "Effect of intraluminal thrombus asymmetrical deposition on abdominal aortic aneurysm growth rate". In: *Journal of Endovascular Therapy* 22.3 (2015). cited By 12, pp. 406–412.

[J12] E. Metaxa, N. Kontopodis, V. Vavourakis, K. Tzirakis, C.V. Ioannou, and Y. Papaharilaou. "The influence of intraluminal thrombus on noninvasive abdominal aortic aneurysm wall distensibility measurement". In: *Medical and Biological Engineering and Computing* 53.4 (2015). cited By 6, pp. 299–308.

[J13] N. Aristokleous, I. Seimenis, G.C. Georgiou, Y. Papaharilaou, B.C. Brott, A. Nicolaides, and A.S. Anayiotos. "Impact of head rotation on the individualized common carotid flow and carotid bifurcation hemodynamics". In: *IEEE Journal of Biomedical and Health Informatics* 18.3 (2014). cited By 7, pp. 783–789.

[J14] C.V. Ioannou, N. Kontopodis, E. Metaxa, Y. Papaharilaou, E. Georgakarakos, A. Kafetzakis, E. Kehagias, and D. Tsetis. "Graft inflow Stenosis induced by the inflatable ring fixation mechanism of the ovation Stent-graft system: Hemodynamic and clinical implications". In: *Journal of Endovascular Therapy* 21.6 (2014). cited By 11, pp. 829–838.

[J15] N. Kontopodis, L. Lipsa, E. Metaxa, E. Georgakarakos, Y. Papaharilaou, D. Tsetis, and C.V. Ioannou. "Thrombus morphology may be an indicator for aneurysm expansion". In: *Journal of Cardiovascular Surgery* 55.2 (2014). cited By 0, pp. 301–302.

[J16] N. Kontopodis, E. Metaxa, Y. Papaharilaou, E. Georgakarakos, D. Tsetis, and C.V. Ioannou. "Value of volume measurements in evaluating abdominal aortic aneurysms growth rate and need for surgical treatment". In: *European Journal of Radiology* 83.7 (2014). cited By 9, pp. 1051–1056.

[J17] K. Tzirakis, Y. Papaharilaou, D. Giordano, and J. Ekaterinaris. "Numerical investigation of biomagnetic fluids in circular ducts". In: *International Journal for Numerical Methods in Biomedical Engineering* 30.3 (2014). cited By 8, pp. 297–317.

[J18] N. Kontopodis, E. Georgakarakos, E. Metaxa, K. Pagonidis, Y. Papaharilaou, and C.V. Ioannou. "Estimation of wall properties and wall strength of aortic aneurysms using modern imaging techniques. One more step towards a patient-specific assessment of aneurysm rupture risk". In: *Medical Hypotheses* 81.2 (2013). cited By 5, pp. 212–215.

[J19] N. Kontopodis, E. Metaxa, M. Gionis, Y. Papaharilaou, and C.V. Ioannou. "Discrepancies in determination of abdominal aortic aneurysms maximum diameter and growth rate, using axial and orhtogonal computed tomography measurements". In: *European Journal of Radiology* 82.9 (2013). cited By 10, pp. 1398–1403.

[J20] N. Kontopodis, E. Metaxa, K. Pagonidis, E. Georgakarakos, Y. Papaharilaou, and C.V. Ioannou. "Aneurysm Intraluminal Thrombus Compressibility Estimated invivo Using Electrocardiographically Gated Computed Tomography: A Feasibility Study". In: *EJVES Extra* 26.1 (2013). cited By 3, e4–e6.

[J21] N. Kontopodis, E. Metaxa, Y. Papaharilaou, E. Georgakarakos, D. Tsetis, and C.V. Ioannou. "Changes in geometric configuration and biomechanical parameters of a rapidly growing abdominal aortic aneurysm may provide insight in aneurysms natural history and rupture risk". In: *Theoretical Biology and Medical Modelling* 10.1 (2013). cited By 7.

[J22] Y. Papaharilaou, N. Aristokleous, I. Seimenis, M.I. Khozeymeh, G.C. Georgiou, B.C. Brott, E. Eracleous, and A.S. Anayiotos. "Effect of head posture on the healthy human carotid bifurcation hemodynamics". In: *Medical and Biological Engineering and Computing* 51.1-2 (2013). cited By 9, pp. 207–218.

[J23] D.A. Steinman et al. "Variability of computational fluid dynamics solutions for pressure and flow in a giant aneurysm: The ASME 2012 summer bioengineering conference CFD challenge". In: *Journal of Biomechanical Engineering* 135.2 (2013). cited By 59.

[J24] C. Zohios, G. Kossioris, and Y. Papaharilaou. "Geometrical methods for level set based abdominal aortic aneurysm thrombus and outer wall 2D image segmentation". In: *Computer Methods and Programs in Biomedicine* 107.2 (2012). cited By 13, pp. 202–217.

[J25] N. Aristokleous, I. Seimenis, Y. Papaharilaou, G.C. Georgiou, B.C. Brott, E. Eracleous, and A.S. Anayiotos. "Effect of posture change on the geometric features of the healthy carotid bifurcation". In: *IEEE Transactions on Information Technology in Biomedicine* 15.1 (2011). cited By 17, pp. 148–154.

[J26] E. Georgakarakos, C.V. Ioannou, Y. Papaharilaou, T. Kostas, and A.N. Katsamouris. "Computational evaluation of aortic aneurysm rupture risk: What have we learned so far?" In: *Journal of Endovascular Therapy* 18.2 (2011). cited By 29, pp. 214–225.

[J27] E. Georgakarakos, C.V. Ioannou, Y. Papaharilaou, T. Kostas, G.V. Kozyrakis, and A.N. Katsamouris. "Studying the expansion of small abdominal aortic aneurysms: Is there a role for peak wall stress?" In: *International Angiology* 30.5 (2011). cited By 3, pp. 462–466.

[J28] C. Stamatopoulos, D.S. Mathioulakis, Y. Papaharilaou, and A. Katsamouris. "Experimental unsteady flow study in a patient-specific abdominal aortic aneurysm model". In: *Experiments in Fluids* 50.6 (2011). cited By 22, pp. 1695–1709.

[J29] A.Z. Valant, L. Žiberna, Y. Papaharilaou, A. Anayiotos, and G.C. Georgiou. "The influence of temperature on rheological properties of blood mixtures with different volume expanders-implications in numerical arterial hemodynamics simulations". In: *Rheologica Acta* 50.4 (2011). cited By 21, pp. 389–402.

[J30] V. Vavourakis, Y. Papaharilaou, and J.A. Ekaterinaris. "Coupled fluid-structure interaction hemodynamics in a zero-pressure state corrected arterial geometry". In: *Journal of Biomechanics* 44.13 (2011). cited By 16, pp. 2453–2460.

[J31] E. Georgakarakos, C.V. Ioannou, Y. Kamarianakis, Y. Papaharilaou, T. Kostas, E. Manousaki, and A.N. Katsamouris. "The Role of Geometric Parameters in the Prediction of Abdominal Aortic Aneurysm Wall Stress". In: *European Journal of Vascular and Endovascular Surgery* 39.1 (2010). cited By 56, pp. 42–48.

[J32] E. Georgakarakos, C.V. Ioannou, T. Kostas, A.N. Katsamouris, and Y. Papaharilaou. “Comment on "The Influence of Wall Stress on AAA Growth and Biomarkers"”. In: *European Journal of Vascular and Endovascular Surgery* 39.6 (2010). cited By 0, p. 796.

[J33] E. Georgakarakos, C.V. Ioannou, T. Kostas, and Y. Papaharilaou. “Regarding "the impact of model assumptions on results of computational mechanics in abdominal aortic aneurysm"”. In: *Journal of Vascular Surgery* 52.4 (2010). cited By 0, p. 1124.

[J34] E. Georgakarakos, C.V. Ioannou, Y. Papaharilaou, T. Kostas, D. Tsetis, and A.N. Katsamouris. “Peak Wall Stress Does Not Necessarily Predict the Location of Rupture in Abdominal Aortic Aneurysms”. In: *European Journal of Vascular and Endovascular Surgery* 39.3 (2010). cited By 13, pp. 302–304.

[J35] Ch. Stamatopoulos, Y. Papaharilaou, D.S. Mathioulakis, and A. Katsamouris. “Steady and unsteady flow within an axisymmetric tube dilatation”. In: *Experimental Thermal and Fluid Science* 34.7 (2010). cited By 9, pp. 915–927.

[J36] E. Georgakarakos, C.V. Ioannou, S. Volanis, Y. Papaharilaou, J. Ekaterinaris, and A.N. Katsamouris. “The influence of intraluminal thrombus on abdominal aortic aneurysm wall stress”. In: *International Angiology* 28.4 (2009). cited By 29, pp. 325–333.

[J37] E. Maravelakis, K. David, A. Antoniadis, A. Manios, N. Bilalis, and Y. Papaharilaou. “Reverse engineering techniques for cranioplasty: A case study”. In: *Journal of Medical Engineering and Technology* 32.2 (2008). cited By 35, pp. 115–121.

[J38] Y. Papaharilaou, J.A. Ekaterinaris, E. Manousaki, and A.N. Katsamouris. “A decoupled fluid structure approach for estimating wall stress in abdominal aortic aneurysms”. In: *Journal of Biomechanics* 40.2 (2007). cited By 86, pp. 367–377.

[J39] S. Giordana, S.J. Sherwin, J. Peiró, D.J. Doorly, Y. Papaharilaou, C.G. Caro, N. Watkins, N. Cheshire, M. Jackson, C. Bicknall, and V. Zervas. “Automated classification of peripheral distal by-pass geometries reconstructed from medical data”. In: *Journal of Biomechanics* 38.1 (2005). cited By 29, pp. 47–62.

[J40] D.J. Doorly, P.T. Franke, Y. Papaharilaou, S. Giordana, S. Sherwin, and J. Peiró. “Measuring and modelling the interaction between the arterial wall and blood flow transport”. In: *Internal Medicine Clinical and Laboratory* 11.1-3 (2003). cited By 1, pp. 3–13.

[J41] M.J. Jackson, C.D. Bicknell, V. Zervas, N.J.W. Cheshire, S.J. Sherwin, S. Giordana, J. Peiró, Y. Papaharilaou, D.J. Doorly, and C.G. Caro. “Three-dimensional reconstruction of autologous vein bypass graft distal anastomoses imaged with magnetic resonance: Clinical and research applications”. In: *Journal of Vascular Surgery* 38.3 (2003). cited By 11, pp. 621–625.

[J42] Y. Papaharilaou, D.J. Doorly, and S.J. Sherwin. “The influence of out-of-plane geometry on pulsatile flow within a distal end-to-side anastomosis”. In: *Journal of Biomechanics* 35.9 (2002). cited By 67, pp. 1225–1239.

[J43] Y. Papaharilaou, D.J. Doorly, and S.J. Sherwin. “Assessing the accuracy of two-dimensional phase-contrast MRI measurements of complex unsteady flows”. In: *Journal of Magnetic Resonance Imaging* 14.6 (2001). cited By 22, pp. 714–723.

[J44] B. Sanghera, S. Naique, Y. Papaharilaou, and A. Amis. “Preliminary study of rapid prototype medical models”. In: *Rapid Prototyping Journal* 7.5 (2001). cited By 75, pp. 275–284.

[J45] S.J. Sherwin, O. Shah, D.J. Doorly, J. Peiró, Y. Papaharilaou, N. Watkins, C.G. Caro, and C.L. Dumoulin. “The influence of out-of-plane geometry on the flow within a distal end-to-side anastomosis”. In: *Journal of Biomechanical Engineering* 122.1 (2000). cited By 87, pp. 86–95.

### *Publications in Conference Proceedings*

[C1] K. Tzirakis, N. Kontopodis, E. Tavlas, C. Chronis, G. Papadopoulos, N. Daskalakis, C. Ioannou, **Y. Papaharilaou** Spatial distribution of abdominal aortic aneurysm surface growth and correlation with diameter and volume expansion. 32nd Annual Meeting of the European Society of Vascular Surgery. September 25-28 2018, Valencia, Spain.

[C2] K. Tzirakis, N. Kontopodis, E. Tavlas, N. Daskalakis, G. Papadopoulou, C. Chronis, C. Ioannou, **Y. Papaharilaou**. Regional surface growth of abdominal aortic aneurysms demonstrates their non-uniform expansion. Live 2018, May 24-26 2018, Patras, Greece.

[C3] Garcia-Garcia, F., Metaxa, E., Christodoulidis, S., Anthimopoulos, M., Kontopodis, N., Correa-Londono, M., Wyss, T.R**., Papaharilaou, Y**., Ioannou, C.V., Tengg-Kobligk, H.V., Mougiakakou, S. Prognosis of Abdominal Aortic Aneurysms: A Machine Learning-Enabled Approach Merging Clinical, Morphometric, Biomechanical and Texture Information (2017) Proceedings - IEEE Symposium on Computer-Based Medical Systems, 2017-June, art. no. 8104238, pp. 463-468.

[C4] K. Tzirakis, J. Peterson, **Y. Papaharilaou**. Finite element based numerical simulation of brain tumor. June 5-10 2016. ECCOMAS Congress. VII European Congress on Computational Methods in Applied Sciences and Engineering. Crete, Greece.

[C5] E. Metaxa, I. Iordanov, E. Maravelakis, **Y. Papaharilaou**. A novel approach for abdominal aortic aneurysm local growth quantification. SB3C 2016 Summer Biomechanics, Bioengineering and Biotransport Conference June 29 –July 2, National Harbor, MD, USA.

[C6] K. Tzirakis, L.Botti, D. Giordano, and **Y. Papaharilaou**. Numerical modelling of non-Newtonian polarizable and magnetizable fluid flow. 8th European Symposium on Aerothermodynamics for Space Vehicles. 2-6 March 2015. Lisbon, Portugal.

[C7] K. Tzirakis, L. Botti and **Y. Papaharilaou**. Numerical modeling of non-Newtonian biomagnetic fluid flow. ECCOMAS, IACM. VI International Conference on Coupled Problems in Science and Engineering - COUPLED PROBLEMS. 2015 May 18 - 20, Venice, Italy

[C8] K. Tzirakis, E. Metaxa, N. Kontopodis, C.V. Ioannou, **Y. Papaharilaou**. Hemodynamic Prediction of Thrombus Prone Regions in Abdominal Aortic Aneurysms Summer Biomechanics, Bioengineering and Biotransport Conference SB3C2015. June 17-20, 2015 Snowbird Utah, USA

[C9] Aristokleous, N., **Papaharilaou, Y.**, Seimenis, I., Georgiou, G.C., Brott, B.C., Anayiotos, A.S. Head rotation effects on the flow and hemodynamics of the human carotid bifurcation (2013) ASME 2013 Summer Bioengineering Conference, SBC 2013 26-29 June 2013, Sunriver, OR, USA

[C10] Metaxa, E., Vavourakis, V., Kontopodis, N., Pagonidis, K., Ioannou, C.V., **Papaharilaou, Y.** Abdominal aortic aneurysm rupture risk assessment exploiting dynamic (4D) CT Based wall motion data and finite element analysis. (2013) ASME 2013 Summer Bioengineering Conference, SBC 2013, SBC 2013 26-29 June 2013, Sunriver, OR, USA

[C11] Aristokleous, N., Seimenis, I., **Papaharilaou, Y.**, Khozeymeh, M.I., Georgiou, G.C., Brott, B.C., Anayiotos, A.S. Head posture influences the geometric and hemodynamic features on the healthy human carotid bifurcation (2012) IEEE 12th International Conference on BioInformatics and BioEngineering, BIBE 2012, art. no. 6399757, pp. 727-731. 11-13 November 2012. Larnaca, Cyprus.

[C12] N. Aristokleous, I. Seimenis, **Y. Papaharilaou**, E. Eracleous, G. Georgiou, B.C. Brott, A.S. Anayiotos. Head Rotation Influences the Geometric Features of the Stenotic Carotid Bifurcation. ASME 2012 Summer Bioengineering Conference, June 20-23, Fajardo, Puerto Rico, USA.

[C13] N. Aristokleous, M.I. Khozeymeh, **Y. Papaharilaou**, G.C. Georgiou, A.S. Anayiotos. CFD challenge: solutions using the commercial finite volume solver, Fluent. ASME 2012 Summer Bioengineering Conference, June 20-23, Fajardo, Puerto Rico, USA.

[C14] **Y. Papaharilaou**, I. Seimenis, A.S. Anayiotos. A novel approach in assessing the effects on hemodynamics of topology preserving shape changes of image based arterial structures. ASME 2011 Summer Bioengineering Conference, June 22-25, Farmington, PA, USA.

[C15] N. Aristokleous, I. Seimenis, **Y. Papaharilaou**, G. Georgiou, B.C. Brott, A.S. Anayiotos. Rightward and leftward head rotation influence the geometric features of the healthy carotid bifurcation. ASME 2011 Summer Bioengineering Conference, June 22-25, Farmington, PA, USA.

[C16] **Y. Papaharilaou.** Geometric tools for shape mapping in topologically similar arterial structures. Recent Advances in Health and Medical Sciences (2nd RAHMS) International Conference – July 8-12th, 2010, Paphos, Cyprus. **(Invited)**

[C17] N. Aristokleous, I. Seimenis, **Y. Papaharilaou**, G. Georgiou, B.C. Brott, A.S. Anayiotos. Effect of head rotation at the prone position on the geometric features of the healthy carotid bifurcation. ASME 2010 Summer Bioengineering Conference, June 20-25, Naples, Florida, USA

[C18] N. Aristokleous, I. Seimenis, **Y. Papaharilaou**, G. Georgiou, B.C. Brott, A.S. Anayiotos. Effect of posture change on the geometric features of the healthy carotid bifurcation. 9th IEEE International Conference on Information Technology and Applications in Biomedicine. November 5-7, 2009, Larnaca, Cyprus.

[C19] A. Zupancic, M. Lunder, L. Ziberna, **Y. Papaharilaou**, G. Georgiou. The influence of temperature on rheologocal properties of blood mixtures with different volume expanders - simulations of blood flow patterns in arteries. 3rd International Workshop on Viscoplastic Fluids: From Theory to Application (III): Limassol, Cyprus, November 1-5, 2009 **(Invited)**.

[C20] E. Georgakarakos, C. Ioannou, **Y. Papaharilaou**, T. Kostas, D. Tsetis, A.N. Katsamouris. Peak Wall Stress does not necessarily predict the location of rupture in abdominal aortic aneurysms. 18th European Chapter Congress of the International Union of Angiology, 24-27 October 2009, Palermo, Italy.

[C21] E. Georgakarakos, Y. Kamarianakis, C. Ioannou,**Y. Papaharilaou**, C. Zohios, A.N. Katsamouris. The reducing effect of intraluminal thrombus on wall stress in abdominal aortic aneurysms can be influenced by the geometric factors. 58th International Congress of the European Society for Cardiovascular Surgery 30 April–5 May 2009 Warsaw, Poland.

[C22] A. Zupancic, U. Zegedin, M. Lunder, L. Ziberna, **Y. Papaharilaou**, G. Georgiou. The effects of temperature, hematocrit, and volume expander on the rheological properties of blood – Simulations of model body liquids and blood in arteries. AERC 2009, April 15-17, Cardiff - United Kingdom.

[C23] **Y. Papaharilaou**, Y. Seimenis, J. Ekaterinaris, G. Georgiou, E. Eracleous, B. Brott, A. Anayiotos. Sensitivity of hemodynamic parameters to waveform, flow division, and head

rotation in the human carotid bifurcation. ASME 2008 Summer Bioengineering Conference, June 25-29, Marco Island, Florida, USA.

[C24] G. Kossioris, **Y. Papaharilaou**, C. Zohios. Detection of lumen, thrombus and outer wall boundaries of an abdominal aortic aneurysm from 2D medical images using level set methods. ASME 2008 Summer Bioengineering Conference, June 25-29, Marco Island, Florida, USA.**(Invited)**

[C25] E. Georgakarakos, C. V. Ioannou, S Volanis, **Y. Papaharilaou**, J. Ekaterinaris, A. N. Katsamouris. The Influence of Intraluminal Thrombus on Abdominal Aortic Aneurysm Wall Stress. World Congress of the international Union of Angiology, June 21-25, Athens **(awarded 1st prize)**.

[C26] **Y. Papaharilaou**, Y. Seimenis, N. Pattakos, J. Ekaterinaris, G. Georgiou, E.Eracleous, C. Christou, B. Brott, A. Anayiotos. Effect of head posture changes in the geometry and hemodynamics of a healthy human carotid bifurcation. ASME 2007 Summer Bioengineering Conference, abstract 176454, June 20-24, Keystone, Colorado, USA.

[C27] **Y. Papaharilaou** and J. Ekaterinaris. The Influence of Asymmetric Inflow in Abdominal Aortic Aneurysm Hemodynamics. European Conference on Computational Fluid Dynamics ECCOMAS CFD 2006. Sep. 2006, Delft, The Netherlands.

[C28] **Y. Papaharilaou**, J. Ekaterinaris, E. Karatsis. The influence of 3D geometry on abdominal aortic aneurysm wall stress. 5th World Congress of Biomechanics, Munich, Germany, July 31st – August 4th, 2006. **(Invited)**

[C29] **Y. Papaharilaou**, J. Ekaterinaris., A. Katsamouris. A computational model for endovascular graft sizing in abdominal aortic aneurysms. 5th World Congress of Biomechanics, Munich, Germany, July 31st –August 4th, 2006. **(Invited)**

[C30] **Y. Papaharilaou**, J. Ekaterinaris, E. Manousaki and A. Katsamouris. A decoupled fluid structure approach of estimating wall stress in abdominal aortic aneurysms. Proceedings of the ASME 2005 Summer Bioengineering Conference, abstract 307124, Vail, CO, June 22–26.

[C31] **Y. Papaharilaou**, J. Ekaterinaris, E. Manousaki and A. Katsamouris. Stress analysis in abdominal aortic aneurysms applying flow induced wall pressure. Proceedings of 5th GRACM International Congress on Computational Mechanics, Nicosia, Cyprus, June 29– July 1 2005.

[C32] **Y. Papaharilaou**, J. Ekaterinaris, E. Manousaki and A. Katsamouris. Image-based computational fluid dynamics and structural analysis in abdominal aortic aneurysms. Proceedings of 1st International Conference on Experiments Process System Modeling Simulation Optimization, Athens, 6-9 July, 2005.

[C33] S. Giordana, J. Peiro, S.J. Sherwin, D.J. Doorly, **Y. Papaharilaou**, C.G. Caro, G.Z. Yang, R. Merrifield. Classification of peripheral distal by-pass geometries obtained via reconstruction from MRI.ESAIM: Proceedings. Vol 12: 55-60 Nov 2002.

[C34] D. Doorly, **Y. Papaharilaou**, P.T. Franke, S. Giordana, S. Sherwin, J. Peiro. Measuring and modelling the interaction between the arterial wall and blood flow transport. BIOMED PHARMACOTHER 56 :345-345 SEP 2002.

[C35] Jackson MJ, **Y. Papaharilaou**, S. Giordana, C.D. Bicknell, V. Zervas, S.J. Sherwin, D. Doorly, J. Peiro, N.J.W. Cheshire, C.G. Caro. In vivo geometric features of femoral bypass distal anastomoses. BRIT J SURG 89: 56-56 Suppl. JUN 2002.

[C36] **Y. Papaharilaou**, D.J. Doorly, S.J. Sherwin, J. Peiro, J. Anderson, B. Sanghera, N. Watkins, C.G. Caro. Combined MRI and computational fluid dynamics detailed investigation of flow in a realistic coronary artery bypass graft model. In Proceedings of the 9th ISMRM-ESMRMB, 2001, Glasgow, p. 379.

[C37] P. Summers, D.W. Holdsworth, H. Nikolov, **Y. Papaharilaou**, B.K. Rutt. Design and construction of a robust phantom for the ISMRM flow and motion group multi-center trial. In Proceedings ISMRM 8, 2000; 458.

[C38] C.G. Caro, N. Watkins, **Y. Papaharilaou**, D.J. Doorly, S.J. Sherwin, J. Peiro, C.L. Dumoulin. Geometry and flow field at arterial bypass grafts: Experimental studies. In book of abstracts: EuroMech Coll 389; Physiological flows and flow-structure interactions. Graz, Austria 1999.**(Invited)**

### *Posters*

[P1] E. Metaxa, N. Kontopodis, C. V. Ioannou, **Y. Papaharilaou**, Integrating Morphologic, Biomechanic, Biological And Clinical Risk Factors To Improve Decision Making In The Management Of Abdominal Aortic Aneurysm Disease. Summer Biomechanics, Bioengineering and Biotransport Conference SB3C2015. June 17-20, 2015 Snowbird Utah, USA.

[P2] Ch. Stamatopoulos, **Y. Papaharilaou**, E. Georgakarakos, D.S. Mathioulakis, A.N. Katsamouris. Particle Image Velocimetry measurements in an abdominal aortic aneurysm model. Bioengineering 2008, Sept.18-19, London, U.K.

[P3] **Y. Papaharilaou**, D.J. Doorly. Accuracy of MRI measurement of complex flows in bypass graft models. In: Book of Abstracts of the ISMRM Flow and Motion Workshop 1999, London, UK; 120.

### *Invited Talks*

[S1] Computational models for patient specific abdominal aortic aneurysm rupture risk estimation. Workshop on Mathematical Modelling and Blood Flow. 2009, May 28-29, University of Lyon, France.

[S2] Magnetohydrodynamics of blood flow. 2010, November 19. Von Karmann Institute for Fluid Dynamics, Brussels, Belgium.

[S3] Non-Newtonian rheology of whole human blood - implications in numerical simulation of arterial hemodynamics. Keynote Lecture in Workshop on Hemodynamics and Hemorheology. University of Cyprus. 2012, February 7.

### *Citations*

Journal publications have received a total of 891+ citations (106 self). h-index=16. Source: Scopus 5/2019.

### *Referee*

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|---|---|
| Journal | International Journal for Numerical Methods in Biomedical Engineering, ZAMM - Journal of Applied Mathematics and Mechanics, Journal of Biomechanics, Annals of Biomedical Engineering, Journal of Biomechanical Engineering, Biomechanics and Modelling in Mechanobiology, Acta Biomaterialia, Journal of Bioengineering Online, Computer Methods and Programs in Biomedicine, Medical & Biological Engineering & Computing, Journal of Applied Mathematics, Mechanics Research Communications, International Journal of Computer Assisted Radiology and Surgery, Proceedings of the Institution of Mechanical Engineers, Part H, Journal of Engineering in Medicine, Computers in Biology and Medicine. |
| Conference | Session Chair and Reviewer for papers in the ASME, Summer Bioengineering Conference and the World Congress of Biomechanics. |

### *Conference/Workshop Organizing*

Aneurysm Session in World Congress of Biomechanics 2014 (with E. Finol)

4D Phase Contrast MRI and image based CFD Workshop in Summer Bioengineering Conference 2012 (with D. Steinman and J. Oshinski)

Summer School in Computational Fluid Dynamics IACM-FORTH 9-14 July 2007 (with J. Ekaterinaris, V. Dougalis, Th. Katsaounis and Ch. Makridakis).

### *PhD Thesis Advisory and Examination Committee Member*

Nikolaos Kontopodis. Medical School University of Crete (Jul 2017) (Advisory Commitee).

Eystratios Georgakarakos. Medical School University of Crete (Jul 2009) (Examination Commitee).

Christos Stamatopoulos. Mechanical Engineering Department, National Technical University of Athens (Sept 2010) (Examination Commitee)

Christos Zohios. Mathematics Department, University of Crete. (Oct 2010) (Examination Commitee)

### *Student Training*

#### *Internships*

Andreas Misiris (Finite element methods in Fluid Dynamics). Mathematics and Applied Mathematics Department, University of Crete (Summer 2018).

Minas Matthaiakis (Finite Element methods in Fluid Dynamics). Chemical Engineering Department University of Patras (Fall 2007 -Spring 2008).

Agisilaos Matalliotakis (Finite Element methods in Fluid Dynamics). Mechanical Engineering Department, AUTH (Summer 2016, Summer 2019)

Sophia-Anna Kavousanou (Image based patient specific computational models of the cardiovascular system) Mathematics Department, University of Crete (Summer 2014).

Vasilis Tsomakidis (Computational models of axisymmetric stenotic flows) Mathematics and Applied Mathematics Department, University of Crete (Summer 2014).

***Graduate Students***

Iordan Iordanov (Computational Geometry Methods in Biomechanics Applications). Mathematics and Applied Mathematics Department, University of Crete. (Winter 2014- Summer 2015)

Georgia Sfakianaki (Finite element based solvers of the Fluid Structure Interaction problem in Biofluids). Mathematics and Applied Mathematics Department, University of Crete. (Winter 2014- Summer 2015)

***PhD Candidates***

Laurentiu Lipsa (Computational Models in Biomechanics). Mechanical Engineering Division. Cartif Technology Center, Spain. (Fall 2012)

Nader El Khatib (Computational Models in Non Newtonian Biofluids). Mathematics Department. University Claude Bernard Lyon 1, France. (Fall 2007)

***Post Doctoral Fellows***

Dr. Vasilis Vavourakis 2009-2010 (currently Asst. Prof., Mech. Eng. Dept. University of Cyprus).

Dr. Eleni Metaxa 2012-2017 (currently at PPC Inc.),

Dr. Konstantinos Tzirakis 2013-2018 (currently at Mech. Eng. Dept. TEI Crete),

Dr. Nikolas Aristokleous June 2014 - March 2015 (currently Post Doctoral Fellow, Lund University, Sweden)

Dr. Thanos Pirentis June 2019 -