

PERSONAL:

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EDUCATION

Ph.D. Department of Biophysical Sciences and Medical Physics, University of Minnesota, 1995.
Topic Cardiac MRI and 31P Spectroscopy (Advisor: Kamil Ugurbil)
M.Sc. Department of Physiology and Biophysics, University of Illinois at Urbana-Champaign, 1992.
B.Sc. Department of Physics, University of Athens, Greece 1989.

PROFESSIONAL EXPERIENCE

2010 present Adjunct Professor, Department of Mechanical Engineering, University of Houston
2009 – present Director of the “Medical Robotics Laboratory” at the University of Houston.
2008 - present Associate Professor Department of Computer Science, University of Houston.
1999 - 2008 Assistant Professor, Department of Radiology and Biomedical Engineering, Washington University Medical Center
1998 – 1999 Research Associate, VA Hospital and University of Minnesota
1996 – 1998 Research Associate, Department of Radiology and Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota.
1995 - 1996 Postdoctoral Fellow, Center for MR Research, Department of Radiology, University of Minnesota.
1992 - 1995 Graduate Research Assistant, Department of Radiology, University of Minnesota.
1991 - 1992 Graduate Research Assistant, Department of Veterinary Medicine, University of Illinois at Urbana-Champaign.
1989 - 1991 Fellow of McKnight Foundation, Department of Physiology and Biophysics, University of Illinois at Urbana-Champaign.

Editorial Contributions

Guest Editor, Focused Section “MRI Compatible Mechatronic Systems”, IEEE/ASME Transactions on Mechatronics, 2007

Research Awards

- 2009 Award for Academic Excellence, Department of Computer Science, University of Houston
- CyEC 2005 Special Recognition Cyprus Entrepreneurship Competition, “Angiosonic, Ltd”
- University of Minnesota, Inventor Recognition Award 2005
- Best Paper award 27th Biennial Mechanisms and Robotics Conference of the American Society of Mechanical Engineers (ASME) International. Title: “Design of a Robotic

Stereotactic Device For Biopsy and Minimally Invasive Interventions In the Breast With Real Time MRI Guidance”

- Award from the Minnesota Project Innovation, for recognition of the effort to achieve federal funding for the grant "Apparatus for MR-guided interventions in the breast
- Commendation from the Minnesota State Governor for achieving federal funding for the grant "Apparatus for MR-guided interventions in the breast" (NCI-R41CA081817)
- McNight Foundation Fellowship. University of Illinois at Urbana-Champaign, 1989-1991

Selected Invited Talks

- Pumps and Pipes IV Conference, “Robotic Interventions: Novel Applications”, December 6th, 2010
- Biomedical Magnetic Resonance Laboratory, Washington University School of medicine. “MR-compatible robotics: from Sensing to Acting”, October 11th, 2010
- Department of Mechanical Engineering, University of Houston, “Image-Guided and robot assisted interventions: a challenge and an Opportunity”, September 30th, 2010
- Interdisciplinary Research in Modeling, Simulation and Surgery of tumors “Image guidance in robot-assisted procedures: Is it necessary and if yes how?” Methodist Hospital 2009
- Computational Surgery and Dual Training Conference “MRI-Guided Robotic Interventions: A Multidisciplinary Challenge and Opportunity”, Strasbourg, France 2008
- 31st Annual International Conference of the IEEE EMBS “MRI-Guided Robotics at the U of Houston: Evolving Methodologies for Interventions and Surgeries” (Minneapolis. Minnesota 2009
- University of Houston, Department of Computer Science, Distinguished Lecturers April, “Methods for Interventions with Real-time MRI Guidance” 2007
- Workshop on Physiological Monitoring; Physiological Monitoring in Image Guided Interventions 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (Lyon, France, August 2007)
- Siemens Medical Systems, *Series Title*: “Current Developments in Interventional Magnetic Resonance Imaging at the Washington University in St. Louis”; Cardiovascular Interventional Meeting 2006
- Siemens Medical Systems, *Series Title*: “Current Developments in Interventional Magnetic Resonance Imaging at the Washington University in St. Louis”; Cardiovascular Interventional Meeting 2005
- Siemens Medical Systems, *Series Title*: “Current Developments in Interventional Magnetic Resonance Imaging at the Washington University in St. Louis”; Cardiovascular Interventional Meeting 2004
- Siemens Medical Systems, *Series Title*: “Current Developments in Interventional Magnetic Resonance Imaging at the Washington University in St. Louis”; Cardiovascular Interventional Meeting 2003,
- Siemens Medical Systems, *Series Title*: “Current Developments in Interventional Magnetic Resonance Imaging at the Washington University in St. Louis”; Cardiovascular Interventional Meeting 2001
- Northwestern University, Department of Radiology, “Cardiovascular and Interventional Magnetic Resonance Imaging”2006
- Saint Louis University, Department of Neurosurgery, : “MR-guided robotic interventions”2006
- Saint Louis University, BME Symposium “MR-guided interventions”
- Shands Hospital at Jacksonville, Florida, Department of Radiology, “Cardiovascular Magnetic Resonance Imaging” 2005

- University of Florida, Department of Biomedical Engineering, "Cardiac and Interventional Magnetic Resonance Imaging" 2005
- University of Pittsburgh Department of Radiology, "Cardiovascular and Interventional MRI" 2005
- Northeastern University, Department of Mechanical Engineering, "MRI-compatible Robotic Systems: Presentation of a device to perform biopsies and Therapeutic Interventions in the Breast with real-time MR guidance" 2004
- Rutgers University, Center for Advanced Information Processing (CAIP), "Development of a Robotic Device for Performing Minimally Invasive Interventions with Real-Time MRI Guidance in the Breast" 2003
- Onassis Cardiac Surgery Center Atheromatous Plaque: MRI 3rd Echocardiography/MRI Workshop 2002
- Onassis Cardiac Surgery Center Interventional MRI 2nd Echocardiography/MRI Workshop 2001

FUNDING

Current Funding

Image Guided Robot-Assisted Medical Interventions

Role: Principal Investigator
Funding Agency: National Science Foundation (NSF CNS-0932272)
Mechanism: CPS: Medium Grant

Prior Funding

Methods for MR Guided Interventions in Coronary Vessels

Role: Principal Investigator
Funding Agency: National Institutes of Health (NIH)-NHLBI
Mechanism: R01 (R01HL067924)
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Development of a device for excision of tumors with real-time magnetic resonance imaging guidance

Role: Co-Investigator (PI: Arthur G. Erdman)
Funding Agency: Department of Defense (DOD) Congressionally Directed Medical Research Program (FY02 BCRP Army Program)
Mechanism: CDMRP)/Breast Cancer Research Idea Award

Apparatus for MR-guided interventions in the breast

Role: Principal Investigator
Funding Agency: National Institutes of Health (NIH)-National Cancer Institute (NCI)
Mechanism: R41 STTR Phase I (R41CA081817)
Period: 02/01/2001-01/31/2003)

Methods for Dynamic Magnetic Resonance Imaging and Spectroscopy of the Heart

Role: Principal Investigator
Funding Agency: The Whitaker Foundation
Mechanism: Biomedical Engineering Research Grant

4-Dimensional LV Tissue tracking in CAD from Tagged MRI

Role: Co-Investigator (PI: Amir Amini)

Funding Agency: National Institutes of Health (NIH)-National Heart Lung and Blood Institute (NHLBI) (R01)

Mechanism: RO1 NIH/NHLBI, R01-HL-64217 (8/00-7/05)

Implementation of Sodium Magnetic resonance Imaging of the Heart at High magnetic Fields.

Role: Principal Investigator

Funding Agency: Minnesota Medical Foundation (MMF)

Assessment of Myocardial Blood Flow with Magnetization Transfer Contrast MRI

Role: Principal Investigator

Funding Agency: Radiological Society of North America (RSNA)

Mechanism: Research Seed Grant

Functional Magnetic Resonance Imaging

Role: Principal Investigator

Funding Agency: General Secretariat of Research and Technology, Ministry of Development, Hellenic Republic

Mechanism: European Union Research Grant in Human Capital and Mobility

PUBLICATIONS

Book Chapter Contributions

- B.1. M. G. Davies, N. V. Tsekos, E. Yeniaras. "Robot-Assisted Procedures with MRI Guidance," Chapter 3 in "Pumps and Pipes" (Editors: M.G. Davies, A.B. Lumsden, W.E. Cline, I. Kakadiaris) Springer (2010)
- B.2. N. V. Tsekos and E. Christoforou, "A General-Purpose MR-Compatible Robotic System" in the Biomedical Engineering Book Series "Advances in Medical Physics" (Editors Anthony B. Wolbarst, Kenneth L. Mossman, and William R. Hendee) Medical Physics Publishing (2010)
- B.3. N. V. Tsekos, E. Yeniaras and A. E. Sonmez "MRI-Guided Robot-Assisted Interventions: An Opportunity and a Challenge in Computational Surgery" in "Computational Surgery and Dual Training" (Editors: Marc Garbey, Barbara Lee Bass, Christophe Collet, Michel de Mathelin, Roger Tran-Son-Tay) Springer (2010)
- B.4. Karanikolas, M., Christoforou, E., Akbudak, E., Eisenbeis, P.E., Nikolaos V. Tsekos. "An Archetype for MRI guided Tele-interventions". Artificial Intelligence Applications and Innovations, Volume 204, p. 476-483 (Editors: Maglogiannis, I., Karpouzis, K., Bramer, M.), Boston Springer 2006
- B.5. N. V. Tsekos, A. A. Amini. Tagged MR Cardiac Imaging. Chapter 6 "Signal Processing for Magnetic Resonance Imaging and Spectroscopy", (Editor: Hong Yan) Marcel Dekker, 2001

Papers in Referred Journals

- J1. Versluis, M.J.; Tsekos, N.; Smith, N.B.; Webb, A.G. "Simple RF design for human functional and morphological cardiac imaging at 7 tesla" Journal of Magnetic Resonance, Volume 200, Issue 1, p. 161-166, 2009
- J2. Blekas, K., Nikou, C., Galatsanos, N G. and Tsekos, N. V., "A regression mixture model with spatial constraints for clustering spatiotemporal data" International Journal on Artificial Intelligence Tools 17(5): 1023-1041, 2008
- J3. Ozcan, A. and Tsekos, N. V., "The Interconnection of MRI Scanner and MR Compatible Robotic Device: Synergistic Graphical User Interface to Form a

- Mechatronic System" IEEE/ASME Transactions on Mechatronics, Volume 13, Issue 3, Page(s):362 - 369 2008
- J4. Tsekos, N.V., Christoforou, E., Ozcan A. "A General-Purpose Robotic System for MR guided Procedures: Implementation and Image Guidance" *Invited to the IEEE-EMB Engineering in Medicine and Biology Magazine Special Issue on MR-Compatible Robotics* 27, 51-8, 2008
- J5. Tsekos, N.V., Khanicheh A., Christoforou, E., Mavroidis, C., Magnetic Resonance Compatible Robotic and Mechatronics Systems for Image Guided Interventions and Rehabilitation: A Review Study. *Annual Reviews of Biomedical Engineering*, Vol. 9, 351-87, 2007
- J6. Gui D, and Tsekos, N.V. "Dynamic Imaging of Contrast Enhanced Coronary Vessels with Rotated Stripe Keyhole Acquisition" *J Magn Reson Imaging* 25, 222-30, 2007
- J7. Christoforou, E., Akbudak, E., Ozcan, A., Karanikolas, M., Tsekos, N.V.. Performance of Interventions with Manipulator-driven Real-time MR-Guidance: Implementation and Initial in Vitro Tests. *Magnetic Resonance Imaging*, 25, 69-77, 2007
- J8. Gui D, and Tsekos, N.V. "Fast Magnetization Driven Preparation for Imaging of Contrast Enhanced Coronary Arteries During Intra-arterial Injection of Contrast Agent" *J Magn Reson Imag* 24, 1151-1158, 2006
- J9. Christoforou, E., Tsekos, N.V., Ozcan A. Design and Testing of a Robotic System for MR Image Guided Interventions. *J of Intelligent & Robotic Systems*, Volume 47, Number 2, p. 175-196, 2006
- J10. Lewis, S. M, Jerde, T. A., Tzagarakis, C., Gourtzelidis, P., Georgopoulos, M. A., Tsekos, N., Amirikian, B., Kim, S. G., Ugurbil, K., Georgopoulos, A. P. Logarithmic transformation for high-field BOLD fMRI data. *Exp Brain Res* 165, 447-53, 2005.
- J11. Tsekos, N.V., Ozcan A, Christoforou, E. A Prototype Manipulator for MR-guided Interventions Inside Standard Cylindrical MRI Scanners *J. Biomechanical Engineering* 127, 972-980, 2005
- J12. Blake T. Larson, Arthur G. Erdman, Nikolaos V. Tsekos, Essa Yacoub, Panagiotis V. Tsekos, and Ioannis G. Koutlas "Design of an MRI-Compatible Robotic Stereotactic Device for Minimally Invasive Interventions in the Breast", *Journal of Biomechanical Engineering* 126 ,458-465, 2004.
- J13. Tsekos, N. V., Atalar, E, Li, D., Omary, R. A., Serfaty, J. M., Woodard, P. K. "Magnetic resonance imaging-guided coronary interventions" *J Magn Reson Imaging* 19, 734-49, 2004
- J14. Lewis, S. M, Jerde, T. A., Tzagarakis, C., Georgopoulos, M. A., Tsekos, N., Amirikian, B., Kim, S. G., Ugurbil, K., Georgopoulos, A. P. Cerebellar activation during copying geometrical shapes. *J Neurophysiol* 90, 3874-87, 2003.
- J15. N. V. Tsekos, M. Garwood, K. Ugurbil. Tagging of the Magnetization with the Transition Zones of 360o rotations generated by a tandem of two adiabatic DANTE inversion sequences, *Journal of Magnetic Resonance*, 156, 187-194, (2002)
- J16. N. V. Tsekos, P.K. Woodard, G.J. Foster, T.L. Sharp, R.J. Gropler. Dynamic coronary MR angiography and first pass with intracoronary administration of contrast agent. *J. of Magnetic Resonance Imaging*, 16, 311-319 (2002).
- J17. Y. K. Cho, H. Merkle, J.Zhang, N.V. Tsekos, R. J Bache, K. Ugurbil. Noninvasive measurements of transmural myocardial metabolites using 3-D (31)P NMR spectroscopy. *Am J Physiol Heart Circ Physiol* 280, H489-97 (2001)
- J18. N. V. Tsekos, F. Zhang, H. Merkle, M. Nagayama, K. Iadecola, S-G. Kim Quantitative Measurement of Cerebral Blood Flow in Rats Brain Using the FAIR technique: Correlation with previous Iodoantipyrine Autoradiographic Studies. *Magnetic Resonance in Medicine* 39, 564-573 (1998).

- J19. S.I. Mavrogeni, E.D. Gotsis, V. Markussis, N. Tsekos, C. Politis, E. Vretou, D. Kremastinos. T2 Relaxation Time Study of Iron Overload in b-Thalassemia. *Magnetic Resonance Materials in Physics, Biology and Medicine* 2, (1998)
- J20. S-G Kim, N.V. Tsekos, J. Ashe. Multi-slice Perfusion-based Functional MRI using the FAIR Technique: Comparison of CBF and BOLD effects. *NMR in Biomedicine* 10, 191-196 (1997)
- J21. S-G Kim, N.V. Tsekos Perfusion Imaging by a Flow-sensitive Alternating Inversion Recovery Technique: Application to Functional Brain Imaging. *Magnetic Resonance in Medicine* 37, 425-435, 1997
- J22. N.V. Tsekos, Garwood, M., H. Merkle, Y. Xu, N. Wilke, K. Ugurbil Myocardial Tagging with B1 Insensitive Adiabatic DANTE Inversion Sequences *Magnetic Resonance in Medicine* 34, 395 - 401 (1995)
- J23. N.V. Tsekos, Y. Zhang, N. Wilke, M. Jerosch-Herold, A. Stillman, H. Merkle, K. Ugurbil Fast Anatomical Imaging of the Heart and Assessment of Myocardial Perfusion with Arrhythmia Insensitive Magnetization Preparation. *Magnetic Resonance in Medicine* 34, 530 - 536 (1995)
- J24. N. Wilke, M. Jerosch-Herold, A. Stillman, N.V. Tsekos, H. Merkle, T. Parrish, Y. Wang, J.B. Bassinghtwaighe, R.J. Bache, K. Ugurbil, Concepts of Myocardial Perfusion Imaging in Magnetic Resonance Imaging, *Magn. Reson. Quart.* Vol. 10, 249-286 (1994)
- J25. Y. Deligiannakis, N. Tsekos, V. Petrouleas, B.A. Diner. Orientation Dependence of the Fe(II)-NO and Fe(III) EPR Signals Associated with the Non-Heme Iron of Photosystem II *Bioch. Bioph. Acta* 1140, 163-168 (1992)

Papers at Referred Conferences

- C1. Erol Yeniaras, Zhigang Deng, Mushabbar A. Syed, Mark Davies, and Nikolaos V. Tsekos "A Novel Path Planning Approach to MRI Guided and Robot Assisted Interventions in the Beating Heart" Submitted to 2010 IEEE International Conference on Robotics and Biomimetics (ROBIO2010) December 14-18, Tianjin, China, 2010
- C2. Nicholas von Sternberg, Yousef Hedayati, Erol Yeniaras, Eftychios Christoforou, and Nikolaos V. Tsekos, "Design of an actuated phantom to mimic the motion of cardiac landmarks for the study of image-guided intracardiac interventions" Submitted to 2010 IEEE International Conference on Robotics and Biomimetics (ROBIO2010) December 14-18, Tianjin, China, 2010
- C3. A. Kilicarslan, J. Mohammadpour, K. Grigoriadis, and N.V. Tsekos, "Design of a Haptic System for Minimally Invasive Cardiac Surgeries," Accepted to Medicine Meets Virtual Reality (MMVR) Conference, Newport Beach, CA, Feb. 2011.
- C4. Erol Yeniaras, Zhigang Deng, Mushabbar A. Syed, Mark Davies, and Nikolaos V. Tsekos, "Virtual Reality System for Preoperative Planning and Simulation of Image Guided Intracardiac Surgeries with Robotic Manipulators" Accepted to Medicine Meets Virtual Reality (MMVR 2010) Newport Beach, California, February 9 - 12, 2011
- C5. Erol Yeniaras, Johann Lamaury, Zhigang Deng, Nikolaos V. Tsekos, "A Prototype Cyber-Physical System for MRI-guided and Robot-assisted Cardiac Procedures" To appear to Proceedings of the 10th IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB 2010), Corfu, Greece, November 3-5, 2010
- C6. Eftychios G. Christoforou, Christoforos Keroglou, Ioannis Seimenis, Nikolaos V. Tsekos, Eleni Andreou, Constantinos Pitris, Eleni Eracleous "An approach to MR-guided interventions with a manually-operated manipulator". To appear to

- Proceedings of the 10th IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB 2010), Corfu, Greece, November 3-5, 2010 (Submitted)
- C7. Kilicarslan, J. Mohammadpour, K. Grigoriadis, and N.V. Tsekos, "Design and Analysis of a Haptic Device for Minimally Invasive Cardiac Surgery," To appear to Proceedings of the 10th IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB 2010), Corfu, Greece, November 3-5, 2010
- C8. C. Keroglou, I. Seimenis, N. Tsekos, C. Pitris, E. Eracleous, E. Christoforou, "Consideration of Geometric Constraints Regarding MR-Compatible Interventional Robotic Devices" 3rd IEEE RAS &EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob 2010), Tokyo, Japan (in press)
- C9. N. Navkar, N. V. Tsekos, J. Stafford, J. Weinberg, and Z. Deng, "Visualization and Planning of Neurosurgical Interventions with Straight Access", In *Proceeding of the 1st International Conference on Information Processing in Computer-Assisted Intervention (IPCAI) 2010*, Geneva, Switzerland, June 2010,
- C10. Yan Zhou, Erol Yeniaras , Mushabbar A. Syed, Nikolaos V.Tsekos, Ioannis Pavlidis "Collaborative Tracking for MRI-Guided Robotic Intervention on the Beating Heart" 13th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2010), Beijing, China September 2010
- C11. Erol Yeniaras, Nikhil Navkar, Mushabbar A. Syed and Nikolaos V. Tsekos " A computational system for performing robot-assisted cardiac surgeries with MRI guidance" in the Intelligent Medical Systems & Bioinformatics of the 15th Society for Design & Process Science (SDPS 2010), Dallas, TX June
- C12. C. Keroglou, N.V. Tsekos, I. Seimenis, E. Eracleous, C.G. Christodoulou, C. Pitris, E.G. Christoforou. "Design of MR-compatible robotic devices: magnetic and geometric compatibility aspects" Accepted 9th International Conference on Information Technology and Applications in Biomedicine (Larnaca, Cyprus, 2009).
- C13. Tsekos, N. V., "MRI-Guided Robotics at the U of Houston: Evolving Methodologies for Interventions and Surgeries" 31st Annual International Conference of the IEEE EMBS, p. 5637-5640, (Minneapolis. Minnesota 2009)
- C14. Blekas, K., Nikou, C., Galatsanos, N G. and Tsekos, N. V., "Curve clustering with spatial constraints for analysis of spatiotemporal data", 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI), p. 529-535 (Patras, Greece 2007)
- C15. Christoforou, E. Özcan A. and Nikolaos V. Tsekos Robotic Arm for Magnetic Resonance Imaging Guided Intervention Accepted BioRob 2006 IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechanics, 2006 IEEE/RAS: IEEE: Robotics and Automation Society & EMBS: Engineering in Medicine and Biology Society, p. 911-916, (Pisa, Italy, 2006).
- C16. Christoforou, E. Ozcan A. and Nikolaos V. Tsekos Manipulator for Magnetic Resonance Imaging Guided Interventions: Design, Prototype and Feasibility. Proceedings of the 2006 IEEE International Conference on Robotics and Automation (ICRA). p. 3838-3843, (Orlando, Florida 2006).
- C17. Christoforou, E. and Nikolaos V. Tsekos Robotic manipulators with remotely-actuated joints. Proceedings of the 2006 IEEE International Conference on Robotics and Automation (ICRA). p. 2866-2871, (Orlando, Florida 2006).
- C18. A. Ozcan, E. Christoforou, D. Brown, and N. V. Tsekos, "Fast and Efficient Radiological Interventions via a Graphical User Interface Commanded Magnetic Resonance Compatible Robotic Device," Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, p. 1762-1677 (New York City, USA, 2006)

- C19. Blake T. Larson, Nikolaos V. Tsekos, Arthur G. Erdman "An MRI Compatible Probe Exchanger for Early Diagnosis and Treatment of Breast Cancer" DETC2004-57047, ASME, Salt Lake City, Utah, 2004
- C20. Dawei Gui and Nikolaos V. Tsekos "Structure-Targeting Fast Magnetic Resonance Imaging Angiography with Partial Collection of the Inverse Space (k-Space) based on the Orientation of the Vessel in Real Space" Proceedings of the IEEE Symposium in Bioinformatics and Bioengineering, p. 122-125, Washington DC, 2003
- C21. Blake T. Larson, Nikolaos V. Tsekos, Arthur G. Erdman "A Robotic Device For Minimally Invasive Breast Interventions With Real-Time MRI Guidance" Proceedings of the 3rd IEEE Symposium in Bioinformatics and Bioengineering, p. 190-197, Washington DC, 2003
- C22. B. T. Larson, N. V. Tsekos, A.G. Erdman, E. Yacoub, P.V. Tsekos, I.G. Koutlas. Design of an MRI-Compatible Robotic Stereotactic Device for Minimally Invasive Interventions in the Breast. (Mechanisms and Robotics Conference of ASME 2002 Design Engineering Technical Conferences Montreal Canada, 2002
- C23. N.V. Tsekos, J. Shudy, E. Yacoub, P.V. Tsekos and I. Koutlas. Development of a robotic device for MRI-guided stereotactic interventions in the breast. Bioinformatics and Bioengineering Conference, Proceedings of the IEEE 2nd International Symposium, p. 201-208, Washington DC, 2001

Abstracts at Referred Conferences

- A1. Erol Yeniaras, Zhigang Deng, Mushabbar Syed, Nikolaos V. Tsekos "An approach for MRI based pre-operative planning of cardiac interventions via trans-apical access", 18th scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM) p. 4422 Stockholm, Sweden, 2010.
- A2. Nikhil Navkar, Zhigang Deng, Jason. Stafford, Jeffrey Weinberg, and Nikolaos V. Tsekos. "A method for planning interventions in the brain with straight access paths", 18th scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM) p. 7162, Stockholm, Sweden, 2010.
- A3. A. Sonmez and N. V. Tsekos "An approach in MRI-guided robot-assisted localized molecular imaging" Proceedings of the Workshop of Automation and Robotics (WAR 2009)
- A4. A. Sonmez, J. Milles, Z. Deng, N. V. Tsekos. "Coregistration and Visualization of Regional Perfusion from First-Pass Multislice Sets based on Independent Components Analysis", 17th scientific Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM) p. 3771 Honolulu, USA, 2009.
- A5. M Versluis; S van Elderen; A. G. Webb; N Tsekos "*In vivo* Human Cardiac Magnetic Resonance Imaging at 7 Tesla", 51st Experimental Nuclear Magnetic Resonance Conference, Magnetic Resonance Imaging No 012, Asilomar Conference Grounds, Pacific Grove, California 2009
- A6. N. G. Katsantonis, M. D. Athanasopoulou, and N. V. Tsekos. Dynamic Coronary MRA During Localized Intra-arterial Infusion of the Intravascular Agent Gadomer, Joint Annual Meeting ISMRM-ESMRMB, p.18, Berlin, Germany, 2007.
- A7. C Nikou, N G. Galatsanos and N. V. Tsekos. Spatial Segmentation Based on the Signal Time Activity of Dynamic Cardiac Images During Intracoronary Infusion of Gd Contrast Agent. p. 3694, Joint Annual Meeting ISMRM-ESMRMB, Berlin, Germany, 2007.
- A8. Eftychios Christoforou, Angel Lee, and Nikolaos V. Tsekos "Implementation of Real-time Safety Control for Image-guided Procedures Inside Cylindrical Scanners with MR-Compatible Manipulators" 14th Scientific Meeting ISMRM, p. 1442, Seattle, Washington, 2006

- A9. Erbil Akbudak, Sven Zuehlsdorff, Eftychios Christoforou, Alpay Ozcan, Menelaos Karanikolas Nikolaos V. Tsekos Freehand Performance of Interventions with Manipulator-Driven Real-Time Update of the Imaging Plane, 14th Scientific Meeting ISMRM, p. 1443, Seattle, Washington, 2006
- A10. Dawei Gui, Nikolaos V. Tsekos, "Dual-Projection Sequence for Fast Volumetric Imaging of Contrast Enhanced Tubular Structures", Accepted for Presentation to the 13th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Miami, 2005
- A11. Dawei Gui, Alpay Ozcan, Jie Zheng, Christine O. Menias, and Nikolaos V. Tsekos "Dynamic Volumetric Imaging of an Area of Interest with Interleaved Acquisition of Intra-Oblique Slices" Accepted for Presentation to the 13th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Miami, 2005
- A12. Eftychios Christoforou, Alpay Ozcan, and Nikolaos V. Tsekos "A Remotely Controlled Device for Real-time MR-Guided Interventions Inside Cylindrical MR Scanners" Accepted for Presentation to the 13th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Miami, 2005
- A13. Dawei Gui, Nikolaos V. Tsekos, Robert J. Gropler "Directional Selective k-Space Acquisition ("DISKA") a technique for selectively imaging targeted segments or branches of a contrast enhanced vessel" Proceedings of the 11th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine, Toronto, Canada, 2003
- A14. E. Yacoub, B.T. Larson, P.V. Tsekos, I.G. Koutlas, A.G. Erdman and N.V. Tsekos. Robotic Device for MR-Guided Interventions in the Breast. Proceedings of the 10th International Society for Magnetic Resonance in Medicine, 339, Honolulu, 2002.
- A15. Y. Gao, R.J. Gropler, N.V. Tsekos Study of the SNR and Localization properties of Chemical Shift Imaging k-space Acquisition Schemes. Proceedings of the 10th International Society for Magnetic Resonance in Medicine, 2430, Honolulu, 2002.
- A16. P.K. Woodard, J. Zheng, N.V. Tsekos, J.P. Lasala, R.T. Constable, R.J. Gropler, Dynamic Contrast-enhanced MRA Technique is Necessary to Accurately Image Occluded Coronary Arteries with Collateral Reconstitution. Proceedings of the 10th International Society for Magnetic Resonance in Medicine, 1593, Honolulu, 2002.
- A17. J. Zheng, D. Yablonsky, M. Nolte, D. Li, P.K. Woodard, N.V. Tsekos, R.J. Gropler. Assessment of myocardial oxygen extraction fraction: Initial experience. Proceedings of the 10th International Society for Magnetic Resonance in Medicine, 778, Honolulu, 2002.
- A18. PK Woodard, J Zheng, D Abendschein, R Kowalski, N Fatouraee, NV Tsekos, A Amini, RJ Gropler. MR Detection of Coronary Artery Stenosis-Associated Flow Disturbance. Proceedings of the Society of Cardiovascular Magnetic Resonance, 2001.
- A19. J. Zheng, P.K. Woodard, D.R. Abendschein, F.M. Cavagna, N.V. Tsekos, R.J. Gropler. Ex vivo MR contrast-enhanced cardiac imaging in a stenosis animal model: Comparison between 1.5T and 3T. Proc. 8th Inter. Soc. of Magnetic Resonance in Medicine, p. 179, 2001
- A20. N.V. Tsekos, P. Woodard, G. Foster, T. Sharp, R.J. Gropler. Toward comprehensive performance of MR-guided vascular interventions: combined dynamic imaging of the coronary arteries and assessment of myocardial perfusion. Proc. 8th Inter. Soc. of Magnetic Resonance in Medicine, 2001
- A21. Y. Gao, E. Akbudak, N.V. Tsekos. Magnetization driven preparation scheme for selective enhancement of short T1 species suitable for fast imaging of contrast enhanced tissue. Proc. 8th Inter. Soc. of Magnetic Resonance in Medicine, 2001

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- A52. Deligiannakis, Y., N.V. Tsekos, Petrouleas, V., Diner, B. A. Orientation Dependence of the Fe(II)-NO and Fe(III) EPR Signals Associated with the Non-Heme Iron of Photosystem II 26th Ampere Congress on Magnetic Resonance, 1992
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TEACHING

Courses:

COSC 6332/4332	Medical Robotics & Image Guided Interventions
COSC 6370/4371	Fundamentals of Medical Imaging
COSC 6397/4397	Special Topics in Cyber-Physical Systems

OTHER SCHOLARLY CONTRIBUTIONS

Academic

- o 2010 present Adjunct Professor, Department of Mechanical Engineering, University of Houston
- o Visiting Professor, KIOS Research Center, University of Cyprus, Cyprus 2009; July 2010
- o Admitted to the University of Minnesota Medical School in 2002-Class 2006 (for personal reasons *unable* to attend).

Patents and Patent Applications

- P.1. Nikolaos V. Tsekos and Ahmet E. Sonmez "Apparatus, Method and System for multimodality Imaging" Provisional Patent Approved by UH (UHID 2010-034)
Current Status: Submitted by the 8th of September of 2010.
- P.2. Nikolaos V. Tsekos and Dawei Gui "Method and Apparatus for Magnetic Resonance Imaging using Directional Selective k-space acquisition", (20070103155).
- P.3. Nikolaos V. Tsekos "System for MRI-guided interventional mammary procedures" N. V. Tsekos US Patent 6,904,305
- P.4. Nikolaos V. Tsekos "MRI-guided Interventional Mammary Procedures" N. V. Tsekos. US Patent 6,675,037.
- P.5. Kamil Ugurbil, Nikolaos V. Tsekos, Michael Garwood. "Fast magnetic resonance imaging for assessment of myocardial perfusion with arrhythmia insensitive magnetization preparation", US Patent 5,908,386.

SERVICE

Conference Activities

- o Program Committee Member, 6th Institute of Electrical and Electronic Engineers (IEEE) Computer Society Symposium in Bioinformatics and Bioengineering, Washington DC, October 16-18, 2006

- Program Committee Member, 5th Institute of Electrical and Electronic Engineers (IEEE) Computer Society Symposium in Bioinformatics and Bioengineering, Minneapolis, October 19-21, 2005
- Session Chair, “Design of Medical Devices” Annual Symposium in Biomedical Engineering, April 24-25, Minneapolis, MN, 2004
- Faculty, 4th International Symposium in Echocardiography/MRI, Onassis Cardiac Surgery Center, September 26-28, 2002
- Program Committee Member and “Magnetic Resonance Technology” Session Chair, 3rd Institute of Electrical and Electronic Engineers (IEEE) Computer Society Symposium in Bioinformatics and Bioengineering, Washington DC, November 4-6, 2002
- Program Committee Member, 2nd Institute of Electrical and Electronic Engineers (IEEE) Computer Society Symposium in Bioinformatics and Bioengineering, Washington DC, November 4-6, 2001
- Faculty, 3rd International Symposium in Echocardiography/MRI, Onassis Cardiac Surgery Center, September 27-29, 2001
- Graduate Student Committee Member (External: Department of Mechanical Engineering, University of Minnesota; Department of Mechanical Engineering, Northeastern University)

Grant Application Panel Participations

National Institutes of Health (NIH) Biomedical Research partnerships (BRP) Study Section ZRG1 SBIB U (50), May 30, 2007; National Institutes of Health (NIH) Council Round ZRG1 SBIB-P(02)M BMIT/MEDI Special Emphasis Panel, October 4, 2006.

Journal Reviewer:

Magnetic Resonance Imaging (MRI), Journal of Magnetic Resonance (JMR), Journal of Magnetic Resonance Imaging (JMRI), IEEE Transactions in Medical Imaging (IEEE-TMI), IEEE Transactions in Biomedical Engineering (IEEE-TBME), IEEE Transactions on Neural Systems & Rehabilitation Engineering (IEEE-TNSRE), IEEE Transactions on Mechatronics (IEEE-TMECH), IEEE Transactions on information Technology in Biomedicine (IEEE-TITB)

Conference Reviewer:

IEEE Computer Society Symposia in Bioinformatics and Bioengineering (IEEE/BIBE), Medical Image Computing and Computer-Assisted Intervention (MICCAI), International Society for Magnetic Resonance in Medicine (ISMRM)

Professional Memberships:

International Society for Magnetic Resonance in Medicine (ISMRM),
Institute of Electrical and Electronics Engineers (IEEE)