Curriculum Vitae

Dr. Edward J. Ciaccio
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1) Personal Data:

Name Edward J. Ciaccio, Ph.D.
Birthplace Ithaca, New York, USA
Citizenship USA

2) Work Experience:

2013 -	Department of Medicine, Columbia University *Senior Research Scientist (in committee)*	New York, NY
07/2010 - 2013	Department of Medicine, Columbia University *Research Scientist*	New York, NY
07/2005 - 06/2010	Department of Pharmacology, Columbia University *Research Scientist*	New York, NY
09/1997 - 05/2006	Dept. of Biomedical Engineering, Columbia University *Adjunct Assistant Professor*	New York, NY
09/1996 - 05/2005	Dept. of Biomedical Engineering, City College of NY *Grant Professor (Adjunct)*	New York, NY
07/1994 - 06/2005	Department of Pharmacology, Columbia University *Associate Research Scientist*	New York, NY
07/1990 - 06/1994	Department of Pharmacology, Columbia University *Staff Associate*	New York, NY

3) Education:

09/1989 - 10/1993	Rutgers / University Medicine & Dentistry of NJ *Ph.D. in Biomedical Engineering, October 1993*	New Brunswick NJ
09/1987 - 06/1989	Rutgers / University Medicine & Dentistry of NJ *M.S. in Biomedical Engineering, October 1989*	New Brunswick NJ
09/1985 - 06/1987	Rutgers / University Medicine & Dentistry of NJ	New Brunswick NJ

Post Baccalaureate coursework

4) Honors:

2012	Highly Performing Peer Reviewer, World Journal of Gastrointestinal Endoscopy
2012	Cited in Advances in Coeliac disease 2012, Current Opinion In Gastroenterology
2011	Editorialized Clinical Sci. Article, October 2011 issue of Circulation: A&E
2011	BioMedical Engineering OnLine, 'Highly accessed'
2010	Remarkable Reviewer for 2010, Heart Rhythm Journal
2010	Poster of Distinction (1 in 10), Digestive Disease Week, Amer Gastr Assoc
2010	BioMedical Engineering OnLine, 'Highly Accessed'
2010	Heart Rhythm First Focus Issue on Atrial Fibrillation
2010	Cited in Year in Arrhythmias 2009, Heart Rhythm
2009	Remarkable Reviewer for 2009, Heart Rhythm Journal
2009	Cited EHRA/HRS Expert Consensus on Ventricular Arrhythmias
2008	Editorialized Clinical Sci. Article, July 2008, Heart Rhythm J
2008	Basic Science Paper of the Year (1 of 4) Heart Rhythm J, Ann Meet. 2008
2007	Editorialized Basic Science and Cover Article, August 2007, Heart Rhythm J
1999-2002	Established Investigator of the American Heart Association
1996	1st Place (tie), ISE Young Inv. Award, 23rd Int Cong Electrocard Cleveland OH
1995	Final Four, ISCE Young Inv. Award, 20th Comp Electrocard, Amelia Island, FL
1994	2nd Place (postdoctoral, sig proc) 13th IEEE Southern Bioeng Conf, Wash, D.C.
1992	1st Place (graduate student paper, sig proc) 18th IEEE NE Bioeng, Kingston, RI

Important Invited Lectureships

2006	Faculty, 1st Int Symp Ventric Arrhythmias, Harvard Univ, Boston MA
1998	Invited Speaker, Congress on Catheter Ablation, Nice, France
1995	Special Lecturer, Department of Biomechanics, Boston University, Boston, MA
1994	Course Director, 17th Annual IEEE Great Lakes Bioengineering Conference, Milwaukee Wisconsin.
1994	Moderator, Special Symposium on New Analytic Techniques for Bioengineering, IEEE Annual Meeting, Washington, DC.

5) Professional Organizations, Societies and Service:

Memberships

Biomedical Engineering Society
IEEE Engineering in Medicine and Biology Society
International Congress on Cardiology
International Society for Computerized Electrocardiology

Editorial

01/2013-present	Computers in Biology and Medicine (Elsevier) *Editor-in-Chief*

07/2011-present World Journal of Gastroenterology
Assistant Editor

Editorial Board Member:

2012-present World Journal of Gastrointestinal Endoscopy (since 2012)
2011-present Journal of Gastroenterology and Hepatology Research (since 2011)
2010-present Journal of Cardiovascular Electrophysiology (since 2010)
2010-present ISRN Signal Processing (since 2010)
2008-present HeartRhythm Journal (since 2008)
2000-present BioMedical Engineering OnLine (since 2000)
1992-2002 IEEE Engineering in Medicine and Biology Magazine (1992-2002)

Guest Editor: Heart Rhythm (2008)
IEEE Engineering in Medicine Biology Magazine (1998)

Current Reviewer: American Journal of Physiology – Heart Circ Physiol
Annals of Biomedical Engineering
BioMedical Engineering Online
BMC Gastroenterology
Circulation
Circulation: Arrhythmia and Electrophysiology
Clinical and Experimental Gastroenterology
Computer Methods and Programs in Biomedicine
Computers in Biology and Medicine
Digestive Diseases and Sciences
European Journal of Clinical Investigation
Gastroenterology and Hepatology Research
Heart Rhythm Journal
IEEE Transactions on Biomedical Engineering
ISRN Signal Processing
Journal of Atrial Fibrillation
Journal of the American College of Cardiology
Journal of Biological Engineering
Journal of Cardiovascular Electrophysiology
Journal of Clinical Anesthesia
Journal of Clinical Pathology
Journal of Electrocardiology
Journal of Gastrointestinal and Liver Diseases
Journal of Human Nutrition and Dietetics
Journal of Interventional Cardiac Electrophysiology
Pacing and Clinical Electrophysiology
Proceedings of the National Academy of Sciences
Progress In Electromagnetics Research
World Journal of Gastroenterology

World Journal of Gastrointestinal Endoscopy
World Journal of Hepatology

G*rant Peer Review:* Austrian Science Fund (2013)
Estonian Science Foundation - ETF (2009)
Research Council for Natural Sciences and Engineering of the Academy of Finland (2007)
US Veterans Administration (2002)
NIH - Special Study Section (R01) (1995)

Scientific Advisory Board: World Congress Heart Disease, Vancouver, Canada (2007 - pr)
International Program Committee: CARDIOTECHNIX 2013

6) Departmental And University Committees:

1999 -2002 Department of Pharmacology, Columbia University New York, NY
Faculty Council

1996 -1998 Department of Biomedical Engineering, Columbia Univ New York, NY
Search Committee

7) Grant Support:

Past Support

7/09 – 6/10 Research Grant, Celiac Sprue Association ($10,000)
Edward J Ciaccio, Ph.D. - P.I., Peter HR Green, M.D. – co-P.I.
Development of Clinical Markers for Evaluation of Cardiologic Function in *Suspected and Diagnosed Celiac Disease*

7/07 – 6/08 Research Grant, Celiac Sprue Association ($10,000)
Edward J Ciaccio, Ph.D. - P.I., Peter HR Green, M.D. – co-P.I.
Quantitative Assessment of Celiac Disease and Impact on Heart Health

9/06 – 12/06 NIH Conference Grant R13 ($20,000)
National Institute of Diabetes and Digestive and Kidney Diseases
Peter HR Green, M.D. – P.I., Edward J Ciaccio, Ph.D. – co-P.I.
International Celiac Disease Symposium

7/99 – 6/03 Program Project Grant ($1,200,000)
Electronics and Computers Core ($100,000)
Andrew L. Wit, Ph.D. – P.I., Edward J Ciaccio, Ph.D. – Core Head
Ion Channels and the Therapy of Ventricular Arrhythmias

1/99 - 12/02 Established Investigator Award, American Heart Association ($300,000)
Edward J Ciaccio, Ph.D. - P.I.

PLATM: Electrogram Shape Analysis for Determining Optimal
Ablation Sites in Reentrant Ventricular Tachycardia

2/01 – 1/02 Transitional Grant, The Whitaker Foundation ($80,000)
Edward J Ciaccio, Ph.D. - P.I.
Relationship Between Local Activity, Reentrant Ventricular Tachycardia

9/97 – 8/00 Research Grant, The Whitaker Foundation ($150,000)
Edward J Ciaccio, Ph.D. - P.I.
A New Approach to the Analysis of Electrogram Features in Arrhythmogenic Hearts for the Localization of Reentrant Circuits

7/94 – 6/99 Program Project Grant ($1,200,000)
Electronics and Computers Core ($100,000)
Andrew L. Wit, Ph.D. – P.I., Edward J Ciaccio, Ph.D. – Core Head
Ion Channels and the Therapy of Ventricular Arrhythmias

Present Support

7/12 - 7/13 2012 Irving Institute/Clinical Trials Office Pilot Award ($100,000)
Angelo B. Biviano MD – P.I, Edward J Ciaccio, Ph.D. – Coinvestigator
Utility of Atrial Electrogram Signal Analysis in Patients Undergoing
Percutaneous *Catheter Ablation for Atrial Fibrillation*

12/11 - 12/13 Katz Prize in Cardiology ($50,000)
William Whang MD – P.I., Edward J Ciaccio, Ph.D. – Coinvestigator
Use of PLATM to Detect Ablation Sites during Atrial Flutter

12/10 -12/15 NIH K23 Grant – ($750,000)
Mentored Patient-Oriented Research Career Development Award
Angelo B. Biviano MD – P.I, Edward J Ciaccio, Ph.D. – Coinvestigator
Measurement of Electrocardiographic Parameters to Determine Outcome of
Catheter Ablation in Atrial Fibrillation Patients

2/10 – 11/13 NIH R01 Research Grant ($770,000)
National Heart, Lung, and Blood Institute
Elisa E. Konofagou PhD – P.I., Edward J Ciaccio, Ph.D. – Coinvestigator
Noninvasive qualitative and quantitative assessment of vascular disease in vivo

8) Teaching Experience and Responsibilities:

Specific Courses

2005	Dept. of Biomedical Engineering, Columbia University *Mathematical Methods in Electrocardiology*	New York, NY
1999-2006	Dept. of Biomedical Engineering, Columbia University	New York, NY

Transduction & Acquisition of Biomedical Data

1997-2005	Dept. of Biomedical Engineering, Columbia University *Computer Control Biomedical Instrumentation*	New York, NY
1997-2005	Dept. of Biomedical Engineering, City College of NY *Biomedical Signal Processing*	New York, NY
1996-2005	Dept. of Biomedical Engineering, City College of NY Biomedical Imaging & Image Processing	New York, NY

Master's Thesis Trainee

7/96 – 6/97	Dept. of Biomedical Engineering, Columbia University *MS Thesis Advisor for Elsa Angelini*	New York, NY

Defense Committee

7/03 – 6/08	Dept. of Biomedical Engineering, Columbia University *Ph.D. Committee Member for Joseph Lasker*	New York, NY

9) Patents and Inventions:

02/2013 Ciaccio EJ. Systems and methods for implementing heart geometrical measurements. U.S. Patent No. 8,386,014, Feb 26, 2013.

07/2007 Ciaccio EJ, Wit AL, Tosti AC. System and method for determining reentrant ventricular tachycardia isthmus location and shape for catheter ablation. US Patent #7,245,962, July 17, 2007.

05/2001 Ciaccio EJ, Wit AL. Methods and systems for localizing reentrant circuits from electrogram features. US Patent #6,236,883, May 22, 2001

11/1994 Drzewiecki GM, Butterfield RD, Ciaccio EJ. Pressure waveform monitor. US Patent #5,363,855, November 15, 1994.

10) Publications:

Original, Peer Reviewed Articles

1. Ciaccio EJ, Ashikaga H, Coromilas J, Hopenfeld B, Cervantes D, Wit AL, Peters NS, Garan H, McVeigh ER. Model of bipolar electrogram fractionation and conduction block associated with activation wavefront direction at infarct border zone lateral isthmus boundaries. Circulation A&E (submitted) 2013.

2. Ciaccio EJ, Biviano AB, Garan H. Isolation of the electrocardiogram F-wave using new LMS algorithm. Comput Methods Programs Biomed. (submitted) 2013.

3. Ciaccio EJ, Biviano AB, Garan H. Computer implementation of novel mathematical transform and associated spectral estimator. Comput Methods Programs Biomed. (submitted) 2013.

4. Lambiase PD, Finlay M, Ciaccio EJ, Brugada R, Lizotte E, Chaubey S, Ben-Simon R, Chow AW, Lowe MD, McKenna WJ. Role of arrhythmogenic right ventricular cardiomyopathy in conduction abnormality. Circulation (submitted) 2013.

5. Ciaccio EJ, Biviano AB, Garan H. The dominant morphology of fractionated atrial electrograms has greater temporal stability in persistent as compared with paroxysmal atrial fibrillation. Computers Biol Med (accepted) 2013.

6. Ciaccio EJ, Biviano AB, Garan H. Computational method for high resolution spectral analysis of fractionated atrial electrograms. Computers Biol Med (accepted) 2013

7. Ciaccio EJ, Biviano AB, Gambhir A, Einstein AJ, Garan H. Ventricular cycle length characteristics estimative of prolonged R-R interval during atrial fibrillation. Pacing Clin Electrophys (second submission) 2013.

8. Ciaccio EJ, Biviano AB, Gambhir A, Jacobson JT, Garan H. Temporal stability in the spectral representation of complex fractionated atrial electrograms. Pacing Clin Electrophys (accepted) 2013.

9. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Use of shape-from-shading principles to estimate three-dimensional architecture of the small intestinal lumen in celiac patients. Comput Methods Programs Biomed. 2013 Jun 28. [Epub ahead of print]

10. Biviano AB, Ciaccio EJ, Gabelman T, Whang W, Garan H. Ibutilide Increases the Variability and Complexity of Atrial Fibrillation Electrograms: Antiarrhythmic Insights Using Signal Analyses. Pacing Clin Electrophysiol. 2013 Jul 22. [Epub ahead of print]

11. Simpson SM, Ciaccio EJ, Case S, Jaffe N, Lebwohl B, Green PH. Celiac disease in patients with type 1 diabetes: Screening and diagnostic practices. Diabetes Educ. 2013 May 14. [Epub ahead of print].

12. Ciaccio EJ, Biviano AB, Whang W, Garan H. Comparison of spectral estimators for characterizing fractionated atrial electrograms. BioMed Eng OnLine 2013;12:72.

13. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Implementation of a polling protocol for predicting celiac disease in videocapsule analysis. World J Gastrointest Endosc 2013; 5:313-322.

14. Treo EF, Cervantes DO, Ciaccio EJ. Automated Detection and Mapping of Electrical Activation when Electrogram Morphology is Complex. Biomedical Signal Processing and Control 2013;8:41-49.

15. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Quantitative estimates of motility from videocapsule endoscopy are useful to discern celiac patients from controls. Dig Dis Sci. 2012;57:2936-2943.

16. Tennyson CA, Ciaccio EJ, Lewis SK. Video Capsule Endoscopy in Celiac Disease. Gastrointestinal Endoscopy Clinics 2012;22:747-758.

17. Ciaccio EJ, Biviano AB, Whang W, Gambhir A, Garan H. Spectral Profiles of Complex Fractionated Atrial Electrograms Are Different in Longstanding and Acute Onset Atrial Fibrillation Atrial Electrogram Spectra. Journal of Cardiovascular Electrophysiology 2012;23:971-979.

18. Ciaccio EJ, Biviano AB, Whang W, Gambhir A, Garan H. Improved frequency resolution for characterization of complex fractionated atrial electrograms. BioMedical Engineering OnLine 2012;11:17.

19. Ciaccio EJ, Biviano AB, Whang W, Garan H. A new LMS algorithm for analysis of atrial fibrillation signals. Biomed Eng Online. 2012;11:15.

20. Lee AR, Ng DL, Diamond B, Ciaccio EJ, Green PH. Living with coeliac disease: survey results from the USA. J Hum Nutr Diet. 2012;25:233-238.

21. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Transformation of videocapsule images to detect small bowel mucosal differences in celiac versus control patients. Comput Methods Programs Biomed. 2012;108:28-37.

22. Ciaccio EJ, Biviano AB, Whang W, Garan H. Identification of Recurring Patterns in Fractionated Atrial Electrograms using New Transform Coefficients. Biomed Eng Online. 2012;11:4.

23. Gomes J, Finlay M, Ahmed AK, Ciaccio EJ, Asimaki A, Saffitz JE, Quarta G, Nobles M, Syrris P, Chaubey S, McKenna WJ, Tinker A, Lambiase PD. Electrophysiological abnormalities precede overt structural changes in arrhythmogenic right ventricular cardiomyopathy due to mutations in desmoplakin-A combined murine and human study. Eur Heart J. 2012;33:1942-1953.

24. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Robust spectral analysis of videocapsule images acquired from celiac disease patients. BioMed Eng OnLine 2011;10:78.

25. Ciaccio EJ, Biviano AB, Whang W, Coromilas J, Garan H. A new transform for the analysis of complex fractionated atrial electrograms. BioMed Eng OnLine 2011;10:35-45.

26. Ciaccio EJ, Biviano AB, Whang W, Gambhir A, Einstein AJ, Garan H. Differences in repeating patterns of complex fractionated left atrial electrograms in longstanding persistent as compared with paroxysmal atrial fibrillation. Circulation: Arrhythmia and Electrophysiology 2011;4:470-477.

27. Whang W, Ciaccio EJ, Hickey KT, Biviano AB, Gambhir A, Garan H. Analysis of far-field electrograms to identify the slow conduction zone in right and left atrial flutter. The Journal of Innovations in Cardiac Rhythm Management 2011;2:1-7.

28. Macia E, Dolmatova E, Cabo C, Sosinsky AZ, Dun W, Coromilas J, Ciaccio EJ, Boyden PA, Wit AL, Duffy HS. Characterization of Gap Junction Remodeling in Epicardial Border Zone of Healing Canine Infarcts and Electrophysiological Effects of Partial Reversal by Rotigaptide. Circ Arrhythm Electrophysiol. 2011;4:344-351.

29. Biviano AB, Coromilas J, Ciaccio EJ, Whang W, Hickey K, Garan H. Frequency Domain and Time Complex Analyses Manifest Low Correlation and Temporal Variability When Calculating Activation Rates in Atrial Fibrillation Patients. Pacing Clin Electrophysiol. 2011;34:540-548.

30. Gehmlich K, Lambiase PD, Asimaki A, Ciaccio EJ, Ehler E, Syrris P, Saffitz JE, McKenna WJ. A novel desmocollin-2 mutation reveals insights into the molecular link between desmosomes and gap junctions. Heart Rhythm. 2011;8:711-718.

31. Ciaccio EJ, Coromilas J, Wit AL, Garan H. Onset dynamics of ventricular tachyarrhythmias as measured by dominant frequency Heart Rhythm. 2011;8:615-623.

32. Ciaccio EJ, Bhagat G, Tennyson CA, Lewis SK, Hernandez L, Green PH. Quantitative assessment of endoscopic images for degree of villous atrophy in celiac disease. Dig Dis Sci 2011;56:805-811.

33. Ciaccio EJ. Ablation of longstanding persistent atrial fibrillation (journal review). J Atrial Fibrillation 2010;2:806-809.

34. Hussain W, Patel PM, Chowdhury RA, Cabo C, Ciaccio EJ, Lab MJ, Duffy HS, Wit AL, Peters NS. The renin-angiotensin system mediates the effects of stretch on conduction velocity, connexin43 expression, and redistribution in intact ventricle. J Cardiovasc Electrophysiol. 2010;21:1276-1283.

35. Ciaccio EJ, Tennyson CA, Bhagat G, Lewis SK, Green PH. Classification of videocapsule endoscopy image patterns: comparative analysis between patients with celiac disease and normal individuals. BioMedical Engineering OnLine 2010;9:44-55.

36. Ciaccio EJ, Biviano AB, Whang W, Gambhir A, Garan H. Different characteristics of complex fractionated atrial electrograms in acute paroxysmal versus long-standing persistent atrial fibrillation. Heart Rhythm 2010;7:1207-1215.

37. Ciaccio EJ, Tennyson CA, Lewis SK, Krishnareddy S, Bhagat G, Green PH. Distinguishing patients with celiac disease by quantitative analysis of videocapsule endoscopy images. Cmput Methods Programs Biomed 2010;100:39-48.

38. Ciaccio EJ, Biviano AB, Whang W, Wit AL, Coromilas J, Garan H. Optimized Measurement of Activation Rate at Left Atrial Sites with Complex Fractionated Electrograms during Atrial Fibrillation. J Cardiovasc Electrophys 2010;21:133-143.

39. Manavalan JS, Hernandez L, Shah JG, Konikkara J, Naiyer AJ, Lee AR, Ciaccio EJ, Minaya MT, Green PHR, Bhagat G. Serum cytokine elevations in celiac disease: Association with disease presentation. Human Immunology 2010;71:50-57.

40. Lambiase PD, Ahmed AK, Ciaccio EJ, Brugada R, Lizotte E, Chaubey S, Ben-Simon R, Chow AW, Lowe MD, McKenna WJ. High-density substrate mapping in Brugada syndrome: combined role of conduction and repolarization heterogeneities in arrhythmogenesis. Circulation 2009 14;120:106-117

41. Lee AR, Ng DL, Dave E, Ciaccio EJ, Green PH. The effect of substituting alternative grains in the diet on the nutritional profile of the gluten-free diet. J Hum Nutr Diet. 2009;22:359-363.

42. Ciaccio EJ, Biviano AB, Whang W, Wit AL, Garan H, Coromilas J. New methods for estimating local electrical activation rate during atrial fibrillation. Heart Rhythm. 2009;6:21-32.

43. Naiyer AJ, Hernandez L, Ciaccio EJ, Papadakis K, Manavalan JS, Bhagat G, Green PH. Comparison of Commercially Available Serologic Kits for the Detection of Celiac Disease. J Clin Gastroenterol. J Clin Gastroenterol. 2009;43:225-232.

44. Naiyer AJ, Shah J, Hernandez L, Kim SY, Ciaccio EJ, Cheng J, Manavalan S, Bhagat G, Green PH. Tissue transglutaminase antibodies in individuals with celiac disease bind to thyroid follicles and extracellular matrix and may contribute to thyroid dysfunction. Thyroid 2008;18:1171-1178.

45. Ciaccio EJ, Drzewiecki GM. Tonometric arterial pulse sensor with noise cancellation. IEEE Trans Biomed Eng. 2008;55:2388-2396.

46. Ciaccio EJ, Bhagat G, Naiyer AJ, Hernandez L, Green PH. Quantitative assessment of the degree of villous atrophy in patients with celiac disease. J Clin Pathol. 2008;61:1089-1093.

47. Ciaccio EJ, Chow AW, Kaba RA, Davies DW, Segal OR, Peters NS. Detection of the diastolic pathway, circuit morphology, and inducibility of human postinfarction ventricular tachycardia from mapping in sinus rhythm. Heart Rhythm. 2008;5:981-991.

48. Hernandez L, Johnson TC, Naiyer AJ, Kryszak D, Ciaccio EJ, Min A, Bodenheimer HC Jr, Brown RS Jr, Fasano A, Green PH. Chronic hepatitis C virus and celiac disease, is there an association? Dig Dis Sci. 2008;53:256-261.

49. Ciaccio EJ, Ashikaga H, Kaba RA, Cervantes D, Hopenfeld B, Wit AL, Peters NS, McVeigh ER, Garan H, Coromilas J. Model of reentrant ventricular tachycardia based on infarct border zone geometry predicts reentrant circuit features as determined by activation mapping. Heart Rhythm 2007;4:1034-1045.

50. Ciaccio EJ, Hiatt M, Hegyi T, Drzewiecki Measurement and monitoring of electrocardiogram belt tension in premature infants for assessment of respiratory function. Biomed Eng Online 2007;6:13-20.

51. Ciaccio EJ, Micheli-Tzanakou E. Development of gradient descent adaptive algorithms to remove common mode artifact for improvement of cardiovascular signal quality. Ann Biomed Eng. 2007;35:1146-1155.

52. Cabo C, Yao J, Boyden PA, Chen S, Hussain W, Duffy HS, Ciaccio EJ, Peters NS, Wit AL. Heterogeneous gap junction remodeling in reentrant circuits in the epicardial border zone of the healing canine infarct. Cardiovasc Res. 2006;72:241-249.

53. Ciaccio EJ, Saltman AE, Bornholdt R, Hernandez O, Coromilas J. Multichannel Data Acquisition System for Mapping the Electrical Activity of the Heart. Pacing Clin Electrophysiol 2005;28:826-838.

54. Ciaccio EJ. Ventricular tachycardia duration and form are associated with electrical discontinuities bounding the core of the reentrant circuit. J Cardiovasc Electrophys 2005;16:646-654.

55. Ciaccio EJ, Tosti AC, Scheinman MM. Robust Method to Predict Isthmus Location in Figure-8 Reentrant Ventricular Tachycardia. J Cardiovasc Electrophys 2005;16:528-537.

56. Ciaccio EJ, Coromilas J, Costeas CA, Wit AL. Sinus rhythm electrogram shape measurements are predictive of the origins and characteristics of multiple reentrant ventricular tachycardia morphologies. J Cardiovasc Electrophys 2004;15:1293-1301.

57. Ciaccio EJ, Chow AW, Davies DW, Wit AL, Peters NS. Localization of reentrant isthmus by analysis of electrograms derived from clinical non-contact mapping. J Cardiovascular Electrophysiology 2004;15:27-36.

58. Angelini EA, Ciaccio EJ. Optimized region finding and edge detection of knee cartilage surfaces from magnetic resonance images. Ann Biomed Eng. 2003;31:336-345.

59. Ciaccio EJ, Lee T. Isochronal difference mapping: A new approach for mapping dynamic changes during reentrant ventricular tachycardia. Pacing Clin Electrophysiol. 2002;25:1737-1746.

60. Ciaccio EJ. Premature excitation and the onset of reentrant ventricular tachycardia. Am J Physiol Heart Circ Physiol. 2002;283:H1703-H1712.

61. Ciaccio EJ, Costeas C, Coromilas J, Wit AL. Static relationship of cycle length to reentrant circuit geometry and to the SCZ during ventricular tachycardia. Circulation 2001;104:1946-1951.

62. Ciaccio EJ, Tosti AC, Scheinman MM. Relationship between sinus rhythm activation and the reentrant ventricular tachycardia isthmus. Circulation 2001;104:613-619.

63. Ciaccio EJ. Dynamic relationship of cycle length to reentrant circuit geometry and to the slow conduction zone during ventricular tachycardia. Circulation 2001;103:1017-1024.

64. Ciaccio EJ. Localization of the slow conduction zone during reentrant ventricular tachycardia. Circulation 2000;102:464-469.

65. Ciaccio EJ, Scheinman MM, Wit AL. Relationship of specific electrogram characteristics during sinus rhythm and ventricular pacing determined by adaptive template matching to the location of functional reentrant circuits that cause ventricular tachycardia in the infarcted canine heart. J. Cardiovascular Electrophysiology 2000;11: 446-457.

66. Ciaccio EJ, Scheinman MM, Fridman V, Schmitt H, Coromilas J, Wit AL. Dynamic changes in electrogram morphology at functional lines of block in reentrant circuits during ventricular tachycardia in the infarcted canine heart: a new method to localize reentrant circuits from electrogram features using adaptive template matching. J Cardiovasc Electrophysiol. 1999;10:194-213.

67. Cohen ZA, McCarthy DM, Kwak SD, Legrand P, Fogarasi F, Ciaccio EJ, Ateshian GA. Knee cartilage topography, thickness, and contact areas from MRI: in-vitro calibration and in-vivo measurements. Osteoarthritis and Cartilage 1999;7:95-109.

68. Costeas C, Peters NS, Waldecker B, Ciaccio EJ, Wit AL, Coromilas J. Mechanisms causing sustained ventricular tachycardia with multiple QRS morphologies: results of mapping studies in the infarcted canine heart. Circulation. 1997;96:3721-3731.

69. Ciaccio EJ, Wit AL, Scheinman MM, Dunn SM, Akay M, Coromilas J. Prediction of the location and time of spontaneous termination of reentrant ventricular tachycardia for radiofrequency catheter ablation therapy. J Electrocardiol. 1995;28 Suppl:165-173.

70. Ciaccio EJ, Dunn SM, Akay M, Wit AL, Coromilas J, Costeas CA. Localized spatial discrimination of epicardial conduction paths after linear transformation of variant information. Ann Biomed Eng. 1994;22:480-492.

71. Ciaccio EJ, Weiner S, Reisman SS, Dunn SM, Akay M. Pattern recognition and interpretation of electromyogram data from cat jaw muscle. Comput Biol Med. 1994;24:19-30.

72. Ciaccio EJ, Dunn SM, Akay M. Biosignal Pattern-Recognition and Interpretation Systems. 4. Classification. IEEE Eng Med Biol Mag 1994;13:269-279

73. Ciaccio EJ, Dunn SM, Akay M. Biosignal Pattern-Recognition and Interpretation Systems. 3. Clustering. IEEE Eng Med Biol Mag 1994;13:129-135

74. Ciaccio EJ, Dunn SM, Akay M. Biosignal Pattern-Recognition and Interpretation Systems 2. Methods For Feature-Extraction And Selection. IEEE Eng Med Biol 1993;12:106-113

75. Ciaccio EJ, Dunn SM, Akay M Biosignal Pattern-Recognition and Interpretation Systems. 1. Fundamental-Concepts IEEE Eng Med Biol Mag 1993;12:89-98

Editorials

1. Ciaccio EJ. Ablation targets in reentrant ventricular tachycardia. Heart Rhythm. 2013 May 9. [Epub ahead of print]

2. Ciaccio EJ, Lewis SK, Green PH. Detection of villous atrophy using endoscopic images for the diagnosis of celiac disease. Dig Dis Sci 2013;58:1167-1169.

3. Ciaccio EJ. Characteristics of critical isthmus sites during reentrant ventricular tachycardia. Heart Rhythm 2011;8:1950-1951.

4. Ciaccio EJ. Torsades, sex hormones, and ventricular repolarization. J Cardiovasc Electrophysiol 2011;22:332-333.

5. Ciaccio EJ. Reversal of neural and electrophysiologic remodeling in cardiac tissue. Heart Rhythm 2009;6:76-77.

6. Ciaccio EJ. Analysis and acquisition of multichannel data in electrocardiology. IEEE Eng Med Biol Mag. 1998;17:32-33.

Book Reviews

1. Ciaccio EJ. Book review of Biomedical Signal and Image Processing. Biomed Eng Online. 2013 (accepted).

2. Ciaccio EJ. Book review of Biomedical Image Processing. Biomed Eng Online. 2011; 10:101.

3. Ciaccio EJ. Book review of Applied Medical Image Processing: A Basic Course. Biomed Eng Online. 2011;10:16-18.

4. Ciaccio EJ. Book review of Wavelets in Medicine and Biology. IEEE Engineering in Medicine and Biology Magazine, 1996;15:140.

Conference Papers

1. Dunn SM, Reisman SS, Akay M, Ciaccio EJ. Exploratory measurements of stationarity in the electrocardiogram. Engineering in Medicine and Biology Society, 1994. Engineering Advances: New Opportunities for Biomedical Engineers. Proceedings of the 16th Annual International Conference of the IEEE 1994,1:A58 - A59.

2. Ciaccio EJ, Weiner S, Reisman SS, Dunn SM, Akay M. Detection of statistically significant differences in cat jaw muscle movement using the EMG linear envelope. Proceedings of the 1993 IEEE Nineteenth Annual Northeast Bioengineering Conference, 1993: 3 – 4.

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