BIOGRAPHICAL SKETCH

NAME Harris, Paul A.	POSITION TITLE Associate Professor, Biomedical Informatics and Biomedical Engineering; Director, Office of Research Informatics and CTSA Informatics Operations Center
eRA COMMONS USER NAME (credential, e.g., agency login) harrispa	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
Tennessee Technological University, Cookeville, TN	BS	12/87	Mechanical Engineering
Vanderbilt University School of Engineering, Nashville, TN	MS	06/93	Biomedical Engineering
Vanderbilt University School of Engineering, Nashville, TN	PhD	06/96	Biomedical Engineering

A. Personal Statement

I serve as Director for the Vanderbilt Office of Research Informatics and in this capacity oversee research data warehousing, data and information management platforms, patient recruitment services and other enterprise-wide informatics resources. I am active in large-scale international collaboration efforts, lead numerous technology dissemination projects (www.project-redcap.org; www.researchmatch.org; www.irbshare.org), am co-director for the CTSA Consortium Coordinating Center (www.ctsacentral.org) and oversee the Vanderbilt Data and Organization for Translational Science (DOTS) program designed to support large-network multi-center studies and trials.

B. Positions and Honors
Positions
1987-1989	Project/Test Engineer, Pratt and Whitney, West Palm Beach, Florida
1989-1991	Propulsion Engineer, Sverdrup Technologies, Huntsville, Alabama
1991-1994	Research Assistant, NIH Training Grant, Division of Cardiology, Vanderbilt University School of Medicine, Nashville, Tennessee
1994-1995	Teaching Assistant, Department of Biomedical Engineering, Vanderbilt University School of Engineering, Nashville, Tennessee
1995-1996	Associate Systems Manager, General Clinical Research Center, Vanderbilt University Medical Center, Nashville, Tennessee
1996-1999	Informatics Mgr, General Clinical Research Center, Medical College of VA, Richmond, Virginia
1999-2005	Research Assistant Professor of Biomedical Engineering, Department of Biomedical Engineering, Vanderbilt University School of Engineering, Nashville, Tennessee
1999-Pres.	Director, GCRC Informatics, General Clinical Research Center, Vanderbilt University Medical Center, Nashville, Tennessee
2005-2010	Research Associate Professor, Department of Biomedical Informatics, Vanderbilt University School of Engineering, Nashville, Tennessee
2010-Pres.	Associate Professor, Department of Biomedical Informatics, Vanderbilt University School of Engineering, Nashville, Tennessee

Honors and Committees
2010-2012	Member, Informatics Operations Group – CTSA National Key Function Committee
2011	Vanderbilt Research Enhancement Award for Outstanding Contributions to Research
2011	Outstanding Researcher Award, Vanderbilt Department of Biomedical Informatics

C. Selected Peer-reviewed Publications (from 44 peer-reviewed articles)

1. D. Darbar, B. Hardin, P. Harris, D.M. Roden. A rate-independent method of assessing QT-RR slope following conversion of atrial fibrillation. *J Cardiovasc Electrophysiol*, 2007, 18(6):636-41. [PMID: 17488270]
2. E.M. Garland, B. Black, P. Harris, D. Robertson. Dopamine-beta-hydroxylase in postural tachycardia syndrome. *Am J Physiol Heart Circ Physiol*, 2007, H684-H690. [PMID: 17625104]
3. E.M. Garland, S.R. Raj, B.K. Black, P.A. Harris, D. Robertson. The Hemodynamic and Neurohumoral Phenotype of the Postural Tachycardia Syndrome (POTS). *Neurology*, 2007 69(8):790-8. [PMID: 17709712]
4. D. Kurnik, C. Li, G.G. Sofowra, E.A. Friedman, M. Muszkat, H.G. Xie, P.A. Harris, S.M. Williams, U.B. Nair, A.J.J. Wood, C.M. Stein. Beta-1 adrenoceptor genetic variants and ethnicity independently affect response to beta-blockate. *Pharmacogenet Genomics*, 2008, 18(10): 895-902.
5. P. Kannankeril, P. Harris, K. Norris, Irfan Warsy, P. Smith, D. Roden. Rate-Independent QT Shortening During Exercise in Healthy Subjects: Terminal Repolarization Does Not Shorten with Exercise. *J Cardiovasc Electrophysiol*. 2008 Dec;19(12):1284-8.
6. P.A. Harris, R. Thielke, R. Taylor, J. Payne, N. Gonzalez, J.G. Conde. Research Electronic Data Capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009 Apr;42(2):377-81. [PMC 2700030]
7. U Kohli, M. Muszkat, GG Sofowora, PA Harris, EA Friedman, WD Dupont, M Scheinin, AJ Wood, CM Stein, D Kurnik. Effects of variation in the human alpha(2A)- and alpha(2C)-adrenoceptor genes on cognitive tasks and pain perception. *Eur J Pain*. 2009 May 5. [PMID: 19423370]
8. EA Friedman, PA Harris, AJ Wood, CM Stein, D Kurnik, The alpha(2C)-adrenoceptor deletion 322-325 variant and cold-induced vasoconstriction. *Clin Auton. Res.* 2009 May 5 [PMID: 19444546]
9. EV Bernstam, WR Hersh, SB Johnson, CG Chute, H Nguyen, I Sim, M Nahm, MG Weiner, P Miller, RP DiLaura, M Overcash, HP Lehmann, D Eichmann, BD Athey, RH Scheuermann, N Anderson, J Starren, PA Harris, JW Smith, E Barbour, JC Silverstein, DA Drusch, R Nagarajan, MJ Becich, CTSA Biomedical Informatics Key Function Committee. Synergies and distinctions between computational disciplines in biomedical research: perspective from the Clinical andTranslational Science Award programs. *Acad Med.* 2009 Jul; 84(7):818-20. [PMID: 19550198]
11. P.A. Harris, R. Thielke, R. Taylor, J. Payne, N. Gonzalez, J.G. Conde. Research Electronic Data Capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support. *IMIA Yearbook of Medical Informatics*. 2009 Sep
12. JM Pulley, PA Harris, T Yarbrough, J Swafford, T Edwards, GR Bernard. An informatics-based tool to assist researchers in initiating research at an academic medical center: Vanderbilt Customized Action Plan. *Acad Med.* 2010 Jan;85(1):164-8. [PMID: 20042844]
13. M Muszkat, D Kurnik, GG Sofowora, J Solus, HG Xie, PA Harris, SM Williams, AJ Wood, CM Stein . Desensitization of vascular response in vivo: contribution of genetic variation in the [alpha]2B-adrenergic receptor subtype. *J Hypertens*. 2010 Feb;28(2):278-84. [PMID: 20051907]
14. J Pulley, NN Hassan, GR Bernard, JN Jirjis, J Schildcrout, D. Robertson, DR Masys, P. Harris. Identifying unpredicted drug benefit through query of patient experiential knowledge: a proof of concept web-based system. *Clin Transl Sci.* 2010 Jun; 3(3):98-103. [PMID: 20590678]
15. PA Harris, JA Swafford, TL Edwards, M Zhang, SS Nigavekar, TR Yarbrough, LD Lane, T Helmer, LA Lebo, G Mayo, DR Masys, GR Bernard, JM Pulley. StarBRITE: The Vanderbilt University Biomedical Research Integration, Translation and Education portal. *J Biomed Inform.* 2011 [PMID: 21310264]
16. PA Harris, KW Scott; L Lebo, N Hassan, C Lightner, J Pulley. ResearchMatch: A national registry to recruit volunteers for clinical research. *Acad Med.* 2012 Jan:87(1):66-73. [PMID: 22104055]
17. S. Murphy, A Dubey, P Embi, P Harris, B Richter, F Turisco, G Weber, J Tcheng, D Keogh. Current State of Information Technologies for the Clinical Research Enterprise across Academic Medical Centers. *Clin Transl Sci.* 2012: Jun 5(3):281-284 [PMID: 22686207]
18. DR Masys, PA Harris, PA Fearn, IS Kohane. Designing a public square for research computing. Sci Transl Med. 2012; Aug 29;4(149) [PMID: 22932220]
19. JS Obeid, CA McGraw, BL Minor, JG Conde, R Pawluk, M Lin, J Wang, SR Banks, SA Hemphill, R Taylor, PA Harris. Procurement of shared data instruments for Research Electronic Data Capture (REDCap). J Biomed Inform 2012 [PMID: 23149159]

D. Research Support
Ongoing Research Support (past three years)

5 D43 TW008440-04 Gadd (PI)   09/26/2009 – 06/30/2014
NIH/John E. Fogarty International Center
Vanderbilt-NARI-NIE Informatics Training Program
Vanderbilt University proposes an informatics training partnership with two leading research institutions in India, the National AIDS Research Institute (NARI) in Pune and the National Institute of Epidemiology (NIE) in Chennai. NARI and NIE are nodal institutes of the Indian Council of Medical Research, providing national level leadership in the field of biomedical and behavioral research in HIV/AIDS and other infectious diseases, clinical and filed epidemiology, and program monitoring and evaluation in India.
Role: Mentor

8 U54 TR000123-02 Bernard (PI)   06/01/2011 – 05/31/2016
NIH/NCATS
Clinical and Translational Science Coordinating Center
The NCATS-funded CTSA sites provide the homes for clinical and translational research nationally, supporting thousands of studies and tens of thousands of researchers investigating human health. To meet the specific objectives of collaboration, enhancing communication and outreach, coordinating and providing administrative support - we will: (1) Create a highly visible and accessible national home for the CTSA including web portal (2) Provide meeting/communications/project management and orchestrate consortium output; (3) Organize the consortium's networking resources; and (4) Create and disseminate software (e.g. REDCap) and other tools that support translational research.
Role: Co-Investigator

5 P30 DK092986-02 Elasy (PI)   09/01/2011-08/31/2016
NIH/NIDDK
Vanderbilt Center for Diabetes Translation Research
Aim 1: To establish three resource cores designed to equip our investigators with key services that facilitate their research. The third core, Health Informatics and Technology, will also serve as a regional core. a. Translation Methods Core b. Community Engagement Core c. Health Information and Technology Core Aim 2: To provide a pilot and feasibility program Aim 3: To provide an enrichment program in Diabetes Translation Research Aim 4: To partner with Meharry Medical College as part of a subcontract thereby providing Meharry with its own core resources for the advancement of local research projects.
Role: Co-Investigator

Booz Allen Hamilton/NCRR Harris (PI)   02/16/2012 – 08/15/2013
Contract Number HHSN26820070031C
ResearchMatch: Supporting Collaboration Between Patient and Research Communities
Aim 1: Define an integrated technology and policy model for the creation and maintenance of disease sub-registries; 2) Develop, test, and implement technical capacity within ResearchMatch to support the sub-registry model in a replicable and sustainable manner; 3) Launch ResearchMatch sub-registries for three well-studied disease domains and validate the new technology and policy model by launching at least three additional disease sub-registries without extensive study; 4) Promote and support the creation of an unlimited number of disease sub-registries by engaging ResearchMatch institutional partners.
Role: PI

2 P30 DK020593 Powers (PI)   05/14/2012-03/31/2017
NIH/NIDDK
Vanderbilt Diabetes Research Center
The Vanderbilt Diabetes Research and Training Center (VDRTC) is an interdisciplinary program that consists of: 1) Administrative Component that coordinates the scientific, organizational, and outreach activities; 2) Biomedical Research Component that recruits and selects VDRTC-affiliated investigators and supervises the research cores that facilitate and enhance their research; 3) Pilot and Feasibility Program that facilitates the development of new investigators into independent scientists and encourages scientists in other fields to enter

the field of diabetes research; and 4) Enrichment, Training, and Outreach Program that fosters an environment conducive to collaborative, interdisciplinary research (seminar series. Diabetes Day), and to training new diabetes scientists (VDRTC oversees three NIDDK-funded diabetes-related training programs).
Role: Mentor

2 UL1 TR000445-06 Bernard (PI)   09/17/2012 – 05/31/2017
NIH/NCATS
The Vanderbilt Institute for Clinical and Translational Research (VICTR)
This program constitutes an institute which permits Vanderbilt University to forge a uniquely transformative, novel, self-evaluated, integrative academic home for clinical and translational science, where both research and researchers flourish. This program will be organized and designed to focus on both bench to bedside and bedside to practice translation. Vanderbilt's institute will complement and interact with the existing NIH funded centers and industry. The program incorporates a T32 and K12 program as part of the training function.
Role: Co-Investigator

1 R25 CA160056-01A1 Shu (PI)   09/13/2012 – 08/31/2017
NIH/NCI
Vanderbilt Training Program in Molecular and Genetic Epidemiology of Center
. We propose to establish the Vanderbilt Training Program in Molecular and Genetic Epidemiology of Cancer (Vanderbilt-MAGEC) to equip postdoctoral fellows from a variety of disciplines with the methodological tools, practical laboratory and survey-research knowledge, and hands-on research and grant writing experience necessary to launch an independent career in the molecular and genetic epidemiology of cancer.
Role: Mentor

Completed Research Support
Booz Allen Hamilton/NCRR Harris (PI)   11/01/2008 – 09/30/2010
Contract Number HHSN26820070031C
Research Electronic Data Capture (REDCap): User-driven Software Development and Collaborative Network Methodology to facilitate Clinical and Translational Research
The specific aims of this project are to:1) Enhance the existing and proven REDCap EDC system to accommodate the rapidly expanding needs of T1 and T2 clinical and translational researchers, by: launching a new survey module allowing direct data entry by research subjects; and extending existing REDCap-CRF application functionality with new modules and user-driven enhancements. 2) Incorporate compliance with national data standards in the REDCap data dictionary development process and develop a mechanism for sharing of study CRF and survey libraries across the community of REDCap users. 3) Create a secure and flexible methodology to enable interoperability between the REDCap data collection system and external data systems such as electronic medical records. 4) Develop, test and apply automated de-identification tools allowing researchers to readily de-identify REDCap datasets, enabling secure sharing of data while protecting participant confidentiality.
Role: PI

5 M01 RR 000095-46 (Balser)   01/01/2003 - 11/30/2007
NIH/NCRR
National Center for Research Resources
General Clinical Research Center
Role: Director, GCRC Informatics

3 T15 LM007450-09S1 Gadd (PI)   07/01/2010 – 06/30/2011
NIH/NLM
Vanderbilt Biomedical Informatics Training Program – Curriculum Supplement
The supplement will be used to fund curriculum initiatives that will enhance existing MS and PhD degree curriculum components and develop significantly revised or new curricular content that further strengthens our clinical informatics, bioinformatics, and translational and research informatics education and training.
Role: Mentor