

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: **Gilbertson, John R**

eRA COMMONS USER NAME (credential, e.g., agency login): NONE

POSITION TITLE: Adjunct Associate Professor, Department of Biomedical Informatics, Univ. of Pittsburgh

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

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Massachusetts Institute of Technology	BS	06/1981	Materials Science & Engineering
Massachusetts Institute of Technology	BS	06/1981	Biology
Duke University	MD	12/1985	Medicine
University of Massachusetts		06/1992	Residency in Pathology
Worcester Memorial Hospital		06/1993	Intern in Medicine
University of Iowa		06/1995	Fellow in Surgical Pathology
University of Pittsburgh		06/1997	Fellow in Pathology Informatics

A. Personal Statement

Dr. John Gilbertson is Adjunct Associate Professor at the University of Pittsburgh. Prior to this, he was Associate Chief of Pathology at the Massachusetts General Hospital, Director of Pathology Informatics, and Founder of the MGH Fellowship in Clinical Informatics. He has given 121 national and international lectures, published 71 peer reviewed papers, trained 37 informatics fellows and has designed and implemented multiple clinical and research information systems. He has active interest in, and has had major impact on, four main areas science:

He is considered a primary inventor of **Whole Slide Imaging (WSI)** and has been a leader in its commercialization, validation, application and implementation. He was a founder of DICOM WG 26 (the Pathology Working Group) and was a primary author of the DICOM standards (122 and 145) that govern WSI integration. His laboratory at MGH led the series clinical studies that resulted in the FDA’s de novo approval of the Philips WSI Platform for primary pathology diagnosis, the first – and currently the only – WSI platform so approved. In **Informatics Education** his informatics fellowship programs at UPMC (under Dr Becich) and MGH/Partners are considered best in the country and have trained more fellows in pathology informatics than all other programs combined. The MGH/Partners program has produced 13 papers in informatics education and developed techniques (national retreats, interactive case studies, blended fellowships) that have become

standards in the field. In **Informatics Systems**, he has developed and implemented a wide range of clinical and research information systems. Most recently he lead the “Partners Enterprise Pathology” initiative which replaced approximately 30 pathology systems with three enterprise wide systems, interfaced them with a new EMR and substantially improved the pathology data and data processes across Partners. Finally, he (with David Louis and Jeff Golden) was primary author(s) on the 2014 seminal paper on **Computational Pathology**. Computational Pathology is the use of computation models to improve the quality, understandability, utility and integration of laboratory data. Dr Gilbertson is now focused on the development of a computational pathology team at MGH with a special focus on machine learning applications, and the implementation of the pathology components of the Partners Center for Clinical Data Sciences.

Dr. Gilbertson’s experience with WSI, Informatics Systems and Computational Pathology allow him to add valuable assistance in the development of procedures for the integration and dissemination of data. Additionally, his focus on machine learning as it applies to images is an important part of his research. All of his experience will be utilized in his capacity at the University of Pittsburgh assisting Dr. Becich and his team.

B. Positions and Honors

List in chronological order previous positions, concluding with the present position. List any honors. Include present membership on any Federal Government public advisory committee.

Academic Appointments:

1997	Assistant Professor of Pathology	University of Pittsburgh
1997 - 2001	Visiting Assistant Prof. of Pathology	University of Pittsburgh
2001 - 2006	Assistant Professor of Pathology	University of Pittsburgh
2006 - 2007	Associate Professor of Pathology	Case Western Reserve University
2007 - 2018	Associate Professor of Pathology	MGH – Harvard University
2019 -	Adjunct Associate Professor of Pathology	University of Pittsburgh

Service Responsibilities:

1997 - 2001	Director of Research and Pathology	University of Pittsburgh, Department of Development Pathology Informatics
2001 - 2006	Director of Research and Development	University of Pittsburgh Center for Pathology and Oncology Informatics
2006 - 2007	Director of Pathology Informatics	Case Western Reserve University
2006 – 2007	Director of Oncology Informatics	Case Comprehensive Cancer Center
2006 - 2007	Associate Director	Case Comprehensive Cancer Center
2007...	Associate Chief of Pathology	Massachusetts General Hospital
2007...	Director of Pathology Informatics	Massachusetts General Hospital
2008-2016.	Director of Partners Clinical Fellowship Program in Pathology Informatics	Partners Healthcare System Partners Healthcare System
2012...	Enterprise LIS Steering Committee	Partners Healthcare System
2014...	Enterprise Research Computing Oversight Committee	Partners Healthcare System
2015...	Director of the MGH ACGME Clinical Informatics Fellowship Program Associate Director of the BWH	Massachusetts General Hospital

2015...	Clinical Informatics and Innovation Fellowship Program	Brigham and Women's Hospital
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Professional Positions in Industry:

1997 – 1999	Co-founder and Chief Operations Officer, DFD Information Services
1999 – 2002	Co-founder and Chief Technology Officer, Interscope Technologies
2008...	Executive Advisory Board, Sunquest Information Systems
2013...	Scientific Advisory Board, Philips Healthcare (Pathology)
2014...	Strategic Advisory Board, Inspirata
2015...	Scientific Advisory Board, Philips Healthcare (Oncology)
2017...	Scientific Advisory Board, Philips Healthcare (Computational Pathology)

Professional Memberships:

Year	Society	Role
1997 - 05	American Telemedicine	Secretary of the Pathology Special Association Interest Group (1997-2005)
2002 -	Association for Pathology Informatics	Program Chair (2006-2008) Program Chair (2010-2011) Standards Chair (2011-2013) Vice President (2014-16) President Elect (2016-17) President (2017-18)
2012 -	College of American Pathologists	DIHIT Committee (2013-2014) Informatics Committee (2015...) -Education Sub-committee (2015...) -Accreditation Sub-commit.(2015...)
Various	USCAP, AACC, AMIA	Member

Honors:

2012	College of American Pathologists	Honorary Fellow of the College
2017	Association of Pathology Informatics	Lifetime Achievement Award

Editorial Activities

Year	Institution	Role
2010-Current	Journal of Pathology Informatics	Editorial Board
Current	Human Pathology	Ad hoc reviewer
Current	BMC Bioinformatics	Ad hoc reviewer
Past	BMC Clinical Pathology	Ad hoc reviewer
Past	Arch Pathol Lab Med	Ad hoc reviewer
Current	AMIA	Ad hoc reviewer

Government, Industry and Standards Committees

2000...	Founding member of DICOM WG 26
2005...	Founding Chair (2005-08), and member since 2009 of the HL7 Anatomic Pathology Working Group
2008	FDA Hematology and Pathology Devices Panel's special sub-group evaluating methods for validation (safety and efficacy) of digital imaging devices in Pathology.
2008 - 2014	Sunquest Executive Advisory Board
2010 - 2017	Philips Digital Pathology Advisory Board
2014...2019	Inspirata Scientific Advisor Board
2016 - 2017	Philips Oncology Advisory Board
2016 - 2017	Philips Computational Pathology Advisory Board 2017... CAP Subcommittee for Machine Learning in Pathology

C. Contribution to Science:

Dr Gilbertson has active interest in, and has made significant impacts on, four areas of science:

1. The development of whole slide imaging and digital pathology

Co-developer of the initial commercial whole slide imagers (as CTO of Interscope Technologies 1998-2005), a founding member of DICOM WG 26 and co author of DICOM Supplements 122 and 145. My group at the Massachusetts General Hospital ran four major clinical trials leading to the FDA approval of the Philips WSI scanner for clinical (primary diagnosis) use.

- Wetzel AW, Gilbertson JR, Beckstead J, Feineigle P, inventors; Interscope Technologies, assignee. System for microscopic digital montage imaging using a pulse light illumination system. US patent 6,798,571. 2004 Sept 28
- Gilbertson JR, Ho J, Anthony L, Jukic DM, Yagi Y, Parwani AV. Primary histologic diagnosis using automated whole slide imaging: a validation study, BMC Pathology 2006,6:4 - DICOM Supplement 122 and Supplement 145

2. The demographics, teaching methods and career paths of pathology informatics.

I as Founder and Director of the Partners Healthcare Pathology Informatics Fellowship (2008-2016) and the Founder and Director of the Partners Healthcare Clinical Informatics Fellowship (2016-2018), as well as Co-Director of the UPMC Pathology Informatics Fellowship (1997-2005). I have trained over 36 physicians in informatics. In collaboration with my fellows, I have published 13 peer reviewed articles in Informatics Education.

- Gilbertson JR, McClintock DS, Lee RE, Onozato, Kuo FC, Beckwith BA, Yagi Y, Dighe AS, Gudewicz TM, Le LP, Wilbur DC, Kim JY, Brodsky VB, Black-Schaffer S. Clinical fellowship training in pathology informatics: a program description. Journal of Pathology Informatics 2012;3:11
- David S McClintock, Bruce P Levy, William J Lane, Roy E Lee, Jason M Baron, Veronica E Klepeis, Maristela L Onozato, JiYeon Kim, Anand S Dighe, Bruce A Beckwith, Frank Kuo, Stephen Black-Schaffer, John R Gilbertson. A core curriculum for clinical fellowship training in pathology informatics. Journal of Pathology Informatics, Year 2012, Volume 3, Issue 1 [p. 31]
- Bruce P Levy, David S McClintock, Roy E Lee, William J Lane, Veronica E Klepeis, Jason M Baron, Maristela L Onozato, JiYeon Kim, Victor Brodsky, Bruce Beckwith, Frank Kuo, John R Gilbertson. Different tracks for pathology informatics fellowship training: Experiences of and input from trainees in a large multisite fellowship program. Journal of Pathology Informatics, Year 2012, Volume 3, Issue 1 [p. 30]

- Roy E Lee, David S McClintock, Ulysses J Balis, Jason M Baron, Michael J Becich, Bruce A Beckwith, Victor B Brodsky, Alexis B Carter, Anand S Dighe, Mehrvash Haghighi, Jason D Hipp, Walter H Henricks, Jiyeon Y Kim, Veronica E Klepseis, Frank C Kuo, William J Lane, Bruce P Levy, Maristela L Onozato, Seung L Park, John H Sinard, Mark J Tuthill, John R Gilbertson. Pathology informatics fellowship retreats: The use of interactive scenarios and case studies as pathology informatics teaching tools. *J Pathol Inform* 2012, 3:41 (28 November 2012)

3. The development of Computational Pathology, including:

Between 2012-2017 I worked with other faculty at Partners Healthcare do develop a series of papers, conferences and research facilities focused aligning pathology and pathology development with Machine Learning technologies.

- Louis DN, Gerber GK, Baron JM, Bry L, Dighe AS, Getz G, Higgins JM, Kuo FC, Lane WJ, Michaelson JS, Le LP, Mermel CH, Gilbertson JR*, Golden JA. Computational pathology: an emerging definition *Arch Pathol Lab Med.* 2014 Sep;138(9):1133-8 *JRG was a primary author
- Louis DN, Feldman M, Carter AB, Dighe AS, Pfeifer JD, Bry L, Almeida JS, Saltz J, Braun J, Tomaszewski JE, Gilbertson JR, Sinard JH, Gerber GK, Galli SJ, Golden JA, Becich MJ. Computational Pathology. *Arch Pathol Lab Med.* 2015 Jun 22.
- Baron JM, Dighe AS, Arnaout R, Balis UJ, Black-Schaffer WS, Carter AB, Henricks WH, Higgins JM, Jackson BR, Kim J, Klepeis VE, Le LP, Louis DN, Mandelker D, Mermel CH, Michaelson JS, Nagarajan R, Platt ME, Quinn AM, Rao L, Shirts BH, Gilbertson JR. The 2013 symposium on pathology data integration and clinical decision support and the current state of field. *J Pathol Inform.* 2014 Jan 31;5:2.
- Wetzel AW, Andrews PL, Becich MJ, Gilbertson JR. Computational aspects of pathology image classification and retrieval. *J Supercomputing* 1997;11:279-93

4. The Development and Implementation of Information Systems and Standards:

Throughout my career, have developed and implemented clinical informatics systems and standards (aka HL7, DICOM) as well as research operations (aka Tissue Banks).

- Gilbertson JR, Mango P, McLinden S, Becich MJ. The Pittsburgh Reference Laboratory Alliance: a model for laboratory medicine in the 21st century. *Am J Clin Pathol.* 1997;107(4):387-94.
- Gupta D, Saul M, Gilbertson J. Evaluation of a de-identification (De-Id) software engine to share pathology reports and clinical documents for research. *Am J Clin Pathol.* 2004;121(2):176-86
- Patel AA, Gilbertson JR, Parwani AV, Dhir R, Datta MW, Gupta R, Berman JJ, Melamed J, KajdacsyBalla A, Orenstein J, Becich MJ. An informatics model for tissue banks – lessons learned from the Cooperative Prostate Cancer Tissue Resource. *BMC Cancer* 2006;8(2):183-92
- McClintock DS, Lee RE, Gilbertson JR. Using computerized workflow simulations to assess the feasibility of whole slide imaging full adoption in a high-volume histology laboratory. *Anal Cell Pathol (Amst).* 2012 Jan 1;35(1):57-64.

D. Research Support

Dr. Gilbertson is funded for 40,000/year as a consultant on the National Mesothelioma Virtual Bank (NMVB) project. He will aid in the implementation of a new research WSI scanner as the MMVB slides are digitized, validated, analyzed and implemented into the mesothelioma researcher's workflow.