

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

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|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------|--------------------|
| NAME | POSITION TITLE | | |
| Robert J. Robbins | Consultant | | |
| EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>) | | | |
| INSTITUTION AND LOCATION | DEGREE (if applicable) | YEAR(s) | FIELD OF STUDY |
| Stanford University | AB | 1966 | History |
| Michigan State University | BS | 1973 | Zoology |
| Michigan State University | MS | 1974 | Biological Science |
| Michigan State University | PhD | 1977 | Zoology |
| University of California at Davis | Post-doctoral | 1978-1979 | Animal Behavior |

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

RESEARCH AND PROFESSIONAL EXPERIENCE:

- 1995 - 2009 Vice President, Information Technology, Fred Hutchinson Cancer Research Center, Seattle, WA
- 1993 - 1995 Program Director, Bioinformation Infrastructure, Office of Health and Environmental Research, US Department of Energy, Washington, DC (on leave from JHU 1993-1995)
- 1991 - 1995 Associate Professor, Department of Medicine, Johns Hopkins University, Baltimore, MD
- 1991 - 1993 Director, Informatics Core, Genome Data Base, Johns Hopkins University
- 1991 - 1993 Director, Applied Research Laboratory, Wm H. Welch Medical Library, School of Medicine, Johns Hopkins University
- 1987 - 1991 Program Director, Database Activities in the Biological Sciences, National Science Foundation, Washington, DC (on leave from MSU 1987-1988).
- 1992 - 1989 Associate Professor, Biological Science and Zoology, Michigan State University, East Lansing, MI
- 1977 - 1982 Assistant Professor, Biological Science and Zoology, Michigan State University, East Lansing, MI

PUBLICATIONS:

- 2021 Cloud Computing and Grant-Funded Biomedical Research: Opportunities, Challenges, and Risks. Manuscript under review. 163 pp. (First author, with Stuart Kendrick, co-author) 2016 Advances in biodiversity: metagenomics and the unveiling of biological dark matter. *Standards in Genomic Sciences*, 11(1):69. (First author, with Leonard Krishtalka and John Wooley, co-authors)
- 2014 Genomic standards consortium projects. *Standards in Genomic Sciences*. 9:599-601. (20th author, with Field D, Sterk P, Kottmann R, De Smet JW, Amaral-Zettler L, Cochrane G, Cole JR, Davies N, Dawyndt P, Garrity GM, Gilbert JA, Glöckner FO, Hirschman L, Klenk HP, Knight R, Kyrpides N, Meyer F, Karsch-Mizrachi I, Morrison N, San Gil I, Sansone S, Schriml L, Tatusova T, Ussery D, Yilmaz P, White O, Wooley J, Caporaso G., co-authors)
- 2014 Meeting report: Advancing practical applications of biodiversity ontologies. *Standards in Genomic Sciences*. 9:17. (11th author, with Ramona L Walls, Robert Guralnick, John Deck, Adam Buntzman, Pier Luigi Buttigieg, Neil Davies, Michael W Denslow, Rachel E Gallery, J Jacob Parnell, David Osumi-Sutherland, Philippe Rocca-Serra, John Wieczorek, Jie Zheng, co-authors)
- 2014 Report of the 14th Genomic Standards Consortium Meeting, Oxford, UK, September 17-21, 2012. *Standards in Genomic Sciences*. 9:1236-1250. (14th author, with Neil Davies, Dawn Field, Linda Amaral-Zettler, Katharine Barker, Mesude Bicak, Sarah Bourlat, Jonathan Coddington, John Deck, Alexei Drummond, Frank Oliver Glöckner, Chris Meyer, Norman Morrison, Matthias Obst, Robert Robbins, Lynn Schriml, Peter Sterk, Steven Stones-Havas., co-authors)

- 2013 Meeting Report: GBIF hackathon-workshop on Darwin Core and sample data (22-24 May 2013). *Standards in Genomic Sciences*. 9:614-627. (12th author, with John Wiczorek, Olaf Banki, Stan Blum, John Deck, Markus Döring, Gabriele Dröge, Dag Endresen, Philip Goldstein, Patrick Leary, Leonard Krishtalka, Eamonn O'Tuama, Robert J Robbins, Tim Robertson, Pelin Yilmaz, co-authors)
- 2013 Clarifying concepts and terms in biodiversity informatics. *Standards in Genomic Sciences*. 8:352-359. (11th author, with Deck J, Barker K, Beaman R, Buttigieg PL, Dröge G, Guralnick R, Miller C, Tuama EÓ, Murrell Z, Parr C, Schigel D, Stucky B, Walls R, Wiczorek J, Morrison N, Wooley J., co-authors)
- 2012 Conceptualizing a Genomics Software Institute (GSI). *Standards in Genomic Sciences*. 6:136-144. (6th author, with Gilbert JA, Catlett C, Desai N, Knight R, White O, Sankaran R, Sansone SA, Field D, Meyer F., co-authors)
- 2012 Report of the 13th Genomic Standards Consortium Meeting, Shenzhen, China, March 4-7, 2012. *Standards in Genomic Sciences*. 6:276-286. (14th author, with Gilbert JA, Bao Y, Wang H, Sansone SA, Edmunds SC, Morrison N, Meyer F, Schriml LM, Davies N, Sterk P, Wilkening J, Garrity GM, Field D, Smith DP, Mizrahi I, Moreau C., co-authors)
- 2012 RCN4GSC Meeting Report: Initiating a Testbed for Managing Data at the Interface of Biodiversity and Genomics/Metagenomics, May 2011. *Standards in Genomic Sciences*. 7:171-174. (First author, with Beach J, Blum S, Dawyndt P, Deck J, Kottmann R, Morrison N, Tuama EÓ, San Gil I, Viegas D, Wiczorek J, Wooley J., co-authors)
- 2012 RCN4GSC Workshop Report: Modeling a Testbed for Managing Data at the Interface of Biodiversity and (Meta)Genomics, April 2011. *Standards in Genomic Sciences*. 7:153-158. (First author, with Cochrane G, Davies N, Dawyndt P, Kottmann R, Krishtalka LK, Morrison N, Ó Tuama E, San Gil I, Wooley J, co-authors)
- 2012 RCN4GSC Workshop Report: Managing Data at the Interface of Biodiversity and (Meta)Genomics, March 2011. *Standards in Genomic Sciences*. 7:159-165. (First author, with Amaral-Zettler L, Bik H, Blum S, Edwards J, Field D, Garrity G, Gilbert JA, Kottmann R, Krishtalka L, Lapp H, Lawrence C, Morrison N, Ó Tuama E, Parr C, San Gil I, Schindel D, Schriml L, Viegas D, Wooley J., co-authors)
- 2011 Policy and data-intensive scientific discovery in the beginning of the 21st century. *OMICS*. 15:221-225. (8th author, with Ozdemir V, Smith C, Bongiovanni K, Cullen D, Knoppers BM, Lowe A, Peters M, Stewart E, Yee G, Yu YK, Kolker E., co-authors)
- 2011 Long-Term Ecological Research Program: Report of the 30 Year Review Committee. *National Science Foundation Publication bio12001*.
<http://www.nsf.gov/pubs/2012/bio12001/bio12001.pdf>
- 2011 Long-Term Ecological Research Program: Report of the 30 Year Review Committee. *National Science Foundation Publication bio12001*.
<http://www.nsf.gov/pubs/2012/bio12001/bio12001.pdf>
- 2011 Data Management for LTER: 1980-2010. *National Science Foundation Publication bio12002*.
<http://www.nsf.gov/pubs/2012/bio12002/bio12002.pdf>
- 2011 Effects of a Web-based intervention on women's breast health behaviors. *Transl Behav Med*. 1:155-164. (Second author, with Bowen DJ, Bush N, Meischke H, Ludwig A, Wooldridge J., co-authors)
- 2009 Security and privacy requirements for a multi-institutional cancer research data grid: an interview-based study. *BMC Medical Informatics and Decision Making* 9:31. (Second author, with F. J. Manion, W. A. Weems and R. S. Crowley, co-authors)
- 2004 What do we mean by internet access? A framework for health researchers. *Preventing Chronic Disease*. 1(4): 1-17. (Last author, with N. Bush, D. Bowen, J. Wooldridge, A. Ludwig, and H. Meischke, co-authors)
- 2003 Early Experience with a Web-based intervention to inform risk of breast cancer. 2003. *Journal of Health Psychology*. 8(1):175-186. (Last author, with D. Bowen, A. Ludwig, N. Bush, H. Unruh, H. Meischke, J. Wooldridge, co-authors)
- 1996 Bioinformatics: Essential infrastructure for global biology. *Journal of Computational Biology*, 3:465-478.
- 1996 Comparative genomics: A new integrative biology. In Collado-Vides, J., Magasanik, B., and Smith, T. (Eds) *Integrative Approaches to Molecular Biology*. Cambridge, Massachusetts: MIT Press. pp. 63-90
- 1995 Information infrastructure. *IEEE Engineering in Medicine and Biology*, 14(6): 746-759.
- 1995 Informatics and the human genome project. *IEEE Engineering in Medicine and Biology*. 14(6): 694-701. (First author, with D. Benton and J. Snoddy, co-authors)
- 1994 Genome informatics I: Community databases. *Journal of Computational Biology*, 1:173-190.
- 1994 Representing genomic maps in a relational database. In S. Suhai (ed.) *Computational Methods in Genome Research*. New York: Plenum Publishing Company. pp. 85-96.
- 1994 Biological Databases: A New Scientific Literature. *Publishing Research Quarterly*, 10:1-27.
- 1993 *Bioinformatics, Supercomputing and Complex Genome Analysis*. Singapore: World Scientific Publishing Company. 850 pp. (fourth editor, with H. A. Lim, J. W. Fickett, C. R. Cantor co-editors)

- 1993 CCM92 informatics report. In Cuticchia, A. J., Pearson, P. L., and H. P. Klinger (eds) *Chromosome Coordinating Meeting 1992, Genome Priority Reports, vol. 1*. Basel: S. Karger A. G.
- 1993 The GDB Human Genome Data Base Anno 1993. *Nucleic Acids Research*, 21:3003–3006. (Fourth author, with A. J. Cuticchia, K. H. Fasman, D. T. Kingsbury, and P. L. Pearson, co-authors)
- 1993 Genome informatics: Requirements and challenges. In H. A. Lim, J. W. Fickett, C. R. Cantor, and R. J. Robbins (eds) *Bioinformatics, Supercomputing and Complex Genome Analysis*. Singapore: World Scientific Publishing Company.
- 1992 Challenges in the Human Genome Project. *IEEE Engineering in Medicine and Biology*. 11:25–34.
- 1992 The GDB Human Genome Data Base Anno 1992. *Nucleic Acids Research*, 20(Supplement):2201–2206. (Fourth author, with P. L. Pearson, N. W. Matheson, and D. C. Flescher, co-authors)
- 1991 The human genome initiative — Do databases reflect current progress? *Science*, 254:215–215. (Fourth author, with P. L. Pearson, B. Maidak, and M. Chipperfield, co-authors)
- 1991 Report of the informatics committee. *Cytogenetics and Cell Genetics*, 58:779–784. (Fourth author, with C. J. Rawlings, C. Brunn, S. Bryant, and R. E. Lucier, co-authors)

INVITED TALKS:

- 2021 Cloud Computing and Grant-Funded Biomedical Research: Opportunities, Challenges, and Risks. AIRI (Association of Independent Research Institutes) Annual Meeting, virtual, 13 September 2021. Video available at <http://www.rj-robbins.com/recommended/videos/airi-2021>
- 2019 Migrating to a Cloud-Based IT Infrastructure in a Grant-Funded Research Environment: Challenges and Limits: 2019 Edition. Partly Cloudy Meeting. 18 October 2019, Fred Hutchinson Cancer Research Center, Seattle, WA
- 2018 Migrating to a Cloud-Based IT Infrastructure in a Grant-Funded Research Environment. Partly Cloudy Meeting. 25 October 2018, Fred Hutchinson Cancer Research Center, Seattle, WA 2016 Adding Sidenotes to a PDF File. Technical Briefing Presentation. GSA Board Meeting, Seattle, WA
- 2016 Reconceiving Biodiversity: Implications from (Meta)Genomics. Invited talk: Ottawa, Canada, 1 Jun 2016
- 2014 Genomics and Metagenomics: What is the Role of the Darwin Core? TDWG 2014 Annual Conference Elmlia Congress Centre, Jönköping, Sweden, October 27-31, 2014
- 2013 Big Data: Yet Another Buzzword or Actual Big Deal? BRIITE Semi-annual Meeting, 11 - 13 Dec, 2013. Salk Institute for Biological Studies, La Jolla, CA
- 2012 How Diverse is the Biosphere? TDWG 2012 Annual Conference, People's Palace, Beijing, China 22-26 Oct 2012.
- 2012 Data Management for LTER@100. 2012 LTER All Scientists Meeting, 10-13 Sep, 2012. Estes Park, CO
- 2012 Aligning Expectations with Resources: What's the Trick? BRIITE Semi-annual Meeting, 5 - 7 Sep, 2012. St Jude Children's Research Hospital Memphis, TN
- 2012 Half of Our Biosphere is Missing. Keynote Presentation, Global Biodiversity Informatics Conference 2012. Copenhagen, Denmark, 2-4 Jul 2012
- 2012 Biodiversity Working Group Report. Genomic Standards Consortium, Annual Meeting, 5 - 7 Mar, 2012. Shenzhen, China
- 2011 Biodiversity Working Group Report. Genomic Standards Consortium, Annual Meeting, 28-30 Sep, 2011. Bremen, Germany
- 2011 IT Architecture: Mastering Complexity With Design. BRIITE Semi-annual Meeting, 7-9 Sep 2011. St Jude Children's Research Hospital Memphis, TN
- 2008 Data Centers Get Serious: Unlimited Demand Meets Practical Reality. Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 10–12 September 2008. St. Jude Children's Research Hospital. Memphis, Tennessee.
- 2007 Implementing Security Without Inhibiting Research: Mission Impossible? Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 3–5 October 2007. UCSF. San Francisco, California.
- 2006 Research Computing Grows Up. Spring Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 3–5 May 2006. Memorial Sloan-Kettering Cancer Center. New York, New York.
- 2005 Data Management in the Research Laboratory: The Sine Qua Non of 21st-Century Science. Mayo Clinic: Informatics Grand Rounds. 10 June 2005. Rochester, Minnesota.
- 2005 IT Operations: Making IT Work in a Profoundly Heterogeneous Environment Spring Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 27–29 April 2005. MD Anderson Cancer Center. Houston, Texas.

- 2005 Multi-Institution Collaborative Computing: What Does it Really Take? Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 2–4 November 2005. Salk Institute for Biological Studies. La Jolla, California.
- 2005 The Future of Biodiversity Informatics – What’s Possible, What’s Not. GBIF Workshop on Building SpeciesBanks: How Shall We Shape the Future? 2–4 March 2005. Amsterdam, The Netherlands
- 2004 Bioinformatics and the Independent Research Institute. AIRI Annual Meeting. 22–24 September. Grand Rapids, Michigan.
- 2004 IT Support for Grant Funded Research: Where Are We Now and Where Should We Be Going? Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 22–24 September 2004. Fred Hutchinson Cancer Research Center. Seattle, Washington.
- 2003 Background Standards – The Critical Missing Piece. NIST workshop: Information Science Standards to Enable Biomedical Research. 4–5 November 2003. Bethesda, Maryland.
- 2003 Digital Publishing Support. Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 10–13 September 2003. Seattle, Washington.
- 2003 Strategic Planning for IT Support of Grant-funded Research. Fall Meeting, BRIITE (Biomedical Research Institutions Information Technology Exchange). 10–13 September 2003. Seattle, Washington.
- 2002 Integrating Bioinformatics Data into Science: From Molecules to Biodiversity. 18th International CODATA Conference, 29 Sep–3 Oct 2002. Montreal, Canada.
- 2001 Bioinformatics and the New Information Technologies. The Canadian Biodiversity Network Conference, 1–4 Mar 2001. Ottawa, Ontario, Canada.
- 2000 Leadership by Example. AAAS Annual Meeting, 17–22 Feb 2000. Washington, DC.
- 1998 Economic Impact of Bioinformatics. ATCC Bioinformatics Symposium, 6 November 1998. Bethesda, Maryland.
- 1998 Information, Logistics, and 21st Century Research. Cancer Centers Administrators Forum, 12 October 1998. Portland, Oregon.
- 1998 Information Technology: The Foundation for 21st Century Research. Keynote Address, Self Graduate Fellowship Retreat, 16-18 August 1998. Kansas City, Missouri.
- 1998 What is Biological Informatics? (keynote address) Australian National Academy of Sciences Conference on Biological Informatics. Canberra, Australia. 6-8 July 1998.
- 1998 Systems Development in Research Organizations. Invited talk, Office of the Vice President for Research, Northwestern University, Evanston, Illinois. 16 February 1998.

NATIONAL OR INTERNATIONAL COMMITTEE ACTIVITIES:

- 2016-now Science Advisory Board, EcoBiomics Research Project, Canadian Genomics Research and Development Initiative. Ottawa, CA.
- 2009-2010 NSF/LTER (Long –Term Ecological Research) 30-year Review Committee
- 2004-2010 Directorate for Biological Sciences Advisory Committee, National Science Foundation
- 2006-2007 NSF Advisory Committee for Cyberinfrastructure, National Science Foundation
- 1998-2008 National Advisory Board (NAB) for the LTER Network and Network Office
- 1998-2000 Steering Committee for the Human Genome Epidemiology Network (HuGE Net), Office of Genetics and Disease Prevention, Center for Disease Control
- 1996-1998 Advisory Board, Arabidopsis Genome Database
- 1995-2001 External Advisory Board of the USC Brain Project
- 1993-1995 Advisory Board, Brain Map Database.
- 1993-1994 Committee on the Formation of the National Biological Survey, National Research Council
- 1991-1992 Human Genome Organization (HUGO)
- 1991-1995 Informatics Committee, HUGO
- 1991-1993 DOE Human Genome Coordinating Committee
- 1991-1993 DOE Informatics Review Committee
- 1991-1993 NCHGR/NIH Special Informatics Review Committee
- 1990-1991 NSF/LTER GIS Advisory Committee
- 1990-1991 NSF/LTER Connectivity Assessment and Networking Committee

1990-1991 NCHGR/NIH Special Genome Centers Review Committee
1990-1991 liaison member (DOE/NSF); Joint Informatics Task Force for the Human Genome
1990-1991 USDA Plant Genome Informatics Subcommittee
1989-1990 Technical Advisors Group for Genome Data Base
1988-1990 Long-Term Ecological Research Working Group on Geographic Information Systems
1988-1991 Computer Advisory Committee, Flora North of North America Project, Missouri Botanical Gardens
1988-1991 Advisory Committee of the Coli Genetic Stock Center at Yale University