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| BIOGRAPHICAL SKETCH Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2. Follow this format for each person.  **DO NOT EXCEED FOUR PAGES.** | | | | |
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| NAME  Todd R. McNutt Ph.D. | | POSITION TITLE  Associate Professor, Dir. of Clinical Informatics  Johns Hopkins University, Dep’t of Radiation Oncology | | |
| eRA COMMONS USER NAME (credential, e.g., agency login)  tmcnutt1 | |
| 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 |
| University of Colorado-Boulder | B.A. | | 1993 | Physics |
| University of Wisconsin-Madison | M.S. | | 1996 | Medical Physics |
| University of Wisconsin-Madison | Ph.D. | | 1997 | Medical Physics |
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A. Personal Statement

Dr. McNutt is an Associate Professor of Medical Physics, and the Director of Clinical Informatics in Radiation Oncology with a joint appointment in Health Science Informatics. In the last 10 years Dr. McNutt has spent a great deal of effort integrating structure data collection into the clinical environment. This involves establishing workflows, user and software interfaces that enable the clinician to interact with the patients with minimal interaction with the computer. The primary focus of the work is to establish a data base that allows efficient access to clinical data to look at toxicity and outcome trends and how they correlate with delivered radiation dosimetry. Dr. McNutt’s group has also built a shape relationship based model of patient similarity that allows one to look at prior radiation oncology patient treatment plans to determine the expected plan quality of a new patient. This model is shared with the broader EMR database model in that we used a database of prior experience to guide the treatment course for new patients. In addition, he has worked to accelerate the treatment planning process by automating planning techniques and developing a GPU based dose computation algorithm for external beam radiation therapy. Dr. McNutt also has substantial experience with software development in a commercial environment. As Director of Research and Advance Development, he oversaw the development of the Pinnacle3 Radiation Therapy Planning System (Philips Radiation Oncology Systems) for 8 years prior to joining Johns Hopkins.

B. Positions and Honors

Oct. 1991 - Dec. 1993 Software Developer, Colorado Center for Astrodynamics Research.

University of Colorado - Boulder, Department of Aerospace Engineering

Jan. 1994 - Jan. 1996 Research/Teaching Assistant. University of Wisconsin, Dept. of Medical Physics

Madison, WI

Jan. 1997-May 1997 Resident Medical Physicist, University of Wisconsin Hospital and Clinics –

Dept. of Human Oncology, Madison, WI

June. 1997 – Oct. 1999 Research and Development Physicist, ADAC Laboratories – Geometrics,

Radiation Therapy Products Division, Madison, WI

Oct. 1999 – May 2005 Director of Research, ADAC / Philips Radiation Oncology Systems, Radiation

Therapy Products Division, Madison, WI

June 2001 – May 2005 Clinical Assistant Professor, University of Wisconsin, Department of Human

Oncology, Madison, WI

May 2005 – Dec. 2012 Assistant Professor, Johns Hopkins University, Department of Radiation

Oncology and Molecular Radiation Sciences, Baltimore, MD

Dec. 2012 – Present Associate Professor, Johns Hopkins University, Department of Radiation

Oncology and Molecular Radiation Sciences, Baltimore, MD

**Relevant Professional Activities**

2007- Member, Integrating the Healthcare Environment (IHE-RO) Planning Committee (ASTRO)

2011- Member, Radiation Oncology Institute -National Radiation Oncology Registry, Executive Committee

2011- Chair, Radiation Oncology Institute -National Radiation Oncology Registry, IT Infrastructure Committee

2011- President-Elect Mid-Atlantic Chapter of the American Association of Physics in Medicine

2011- Member of AAPM Task Group 263 on Standardizing Nomenclature for Radiation Therapy

C. Selected Peer-reviewed Publications

1. F. Marungo, S. Robertson, H. Quon, J. Rhee, H. Paisley, R. H. Taylor, and T. McNutt, \Creating

a data science platform for developing complication risk models for personalized treatment planning

in radiation oncology," in 48th Hawaii International Conference on System Sciences (HICSS), p. (to

appear), IEEE, 2015

2. Giuseppe Sanguineti, Francesco Ricchetti, Owen Thomas, Binbin Wu, Todd McNutt, “Pattern and Predictors of Volumetric Change of Parotid Glands during Intensity Modulated Radiotherapy”. The British journal of radiology 09/2013T.

3. B. Wu, D. Pang, P. Simari, R. Taylor, G. Sanguineti, T. McNutt, “Using overlap volume histogram and IMRT plan data to guide and automate VMAT planning: a head-and-neck case study,” Medical Physics. Medical Physics 02/2013; 40(2):021714

4. Yidong Yang, Eric C Ford, Binbin Wu, Michael Pinkawa, Baukelien van Triest, Patrick Campbell, Danny Y Song, Todd R McNutt, “ An overlap-volume-histogram based method for rectal dose prediction and automated treatment planning in the external beam prostate radiotherapy following hydrogel injection”. Medical Physics 01/2013; 40(1):011709

5. McNutt, J. Wong, J. Purdy, R. Valicenti, T. DeWeese, “OncoSpace: A New Paradigm for Clinical Research and Decision Support in Radiation Oncology” Proceedings of the XVIth Int’l Conf on Computers in Radiotherapy June 1, 2010

6. Michael Kazhdan, Patricio Simari, Todd McNutt, Binbin Wu, Robert Jacques, Ming Chuang, and Russell Taylor, “A Shape Relationship Descriptor for RadiationTherapy Planning” MICCAI Sept 2009

7. Binbin Wu, Francesco Ricchetti, Giuseppe Sanguineti, Misha Kazhdan, Patricio Simari, Ming Chuang, Russell Taylor, Robert Jacques, Todd McNutt, ”Patient Geometry-Driven Information Retrieval for IMRT Treatment Plan Quality Control”, Medical Physics v36, n12, 5497-5505, Dec. 2009

8. Wu, B., Ricchetti, F., Sanguineti, G., Kazhdan, M., Simari, P., Jacques, R., Taylor, R., McNutt, T.: “Data-driven approach to generating achievable dose-volume histogram objectives in intensity modulated radiotherapy planning”. International Journal of Radiation Oncology, Biology, Physics 2011 Mar 15;79(4):1241-7. Epub 2010 Aug

9. Kang, J. Ford, E. Smith, K. Wong, J., McNutt, T. “A method for optimizing linac treatment geometry for volumetric modulated arc therapy of multiple brain metastases”, Med. Phys. 2010 Aug; 37(8):4146-54

10. Jacques, R. Wong, J. Taylor, R. McNutt, T.” Real-Time Dose Computation: GPU Accelerated Source Modeling and Superposition/Convolution”, Med Phys. 2011 Jan; 38(1):294-305.

11. Steven F. Petit, Binbin Wu, Michael Kazhdan , André Dekker, Patricio Simari, Rachit Kumar, Russel Taylor, Joseph M. Herman, Todd McNutt,” Increased organ sparing using shape-based treatment plan optimization for intensity modulated radiation therapy of pancreatic adenocarcinoma”, Radiotherapy and Oncology, 102 (2012) 38–44.

12. Jatinder R. Palta PhD, Jason A. Efstathiou MD, PhD, Justin E. Bekelman MD,, Sasa Mutic PhD,, Carl R. Bogardus MD, Todd R. McNutt PhD, Peter E. Gabriel MD, Colleen A. Lawton MD, Anthony L. Zietman MD, Christopher M. Rose MD, “Developing a national radiation oncology registry: From acorns to oaks,” Practical Radiation Oncology, Vol. 2, Issue 1 , pp 10-17, January 2012

13. Sanguineti G, Ricchetti F, Wu B, Agrawal N, Gourin C, Agbahiwe H, Marur S, Clemente S, McNutt T, Forastiere A, “Volumetric change of human papillomavirus-related neck lymph nodes before, during, and shortly after intensity-modulated radiation therapy.” Head Neck. 2012 Jan 20. doi: 10.1002/hed.21981.

14. Kristin J. Redmond; E. Mark Mahone; Stephanie Terezakis; Omar Ishaq; Eric Ford; Todd McNutt; Lawrence Kleinberg; Kenneth J. Cohen; Moody Wharam; Alena Horska, “Association between radiation dose to neuronal progenitor cell niches and temporal lobes and performance on neuropsychological testing in children: a prospective study,” Neuro-Oncology 2013; doi: 10.1093/neuonc/nos303

15. V. Pekar, T.R. McNutt, M.R. Kaus, “Automated Model-based Organ Delineation for Radiation Therapy Planning in the Prostate Region,” Int’l. J. Rad. Onc. Bio. Phys. 2004;60(3):973-80.

D. Research Support

Commonwealth Foundation Pilot Project for Center for Personalized Cancer Medicine

1/1/ 2012 – 1/31/2014

Personalized radiation therapy using an analytic database of previously treated patients

Role: Principal investigator

Philips Medical Systems: 10/15/2007-6/31/2015

Shape Based Correlations to RT Plan Quality and Treatment Outcome Using an On-Line Analytical Processing (OLAP) system

Role: Principal Investigator

Elekta Oncology Systems 12/1/2014-11/31/2016

Mobile solutions for data capture in radiation oncology

Role: Principal Investigator