

UNIVERSITY OF IOWA, COLLEGE OF MEDICINE CURRICULUM VITAE

Earl Nixon, M.S.

01NOV11

**I. EDUCATIONAL AND PROFESSIONAL HISTORY**

**A. List of Institutions Attended**

1999	<b>Certificate</b>	Academy of Health Sciences, San Antonio, Texas; (Radiographer)
2003	<b>B.Eng.</b>	University of Applied Sciences Giessen-Friedberg, Giessen, Germany; (Clinical Engineering)
2006	<b>M.S.</b>	University of Iowa, Iowa City, (Biomed Engineering)
2008	<b>Residency</b>	CAMPEP Accredited Medical Physics Residency University of Iowa, Iowa City, Iowa

**Board Certification and Licensure**

1999	Certification: The American Registry of Radiologic Technologists: Radiography R.T. (R)
2009-	Registered: Iowa IDPH Bureau of Radiological Health: Medical Physicist
2011	American Board of Radiology: Therapeutic Medical Physics. DABR

**B. Professional and Academic Positions Held**

1995-1997	Network Communications Specialist, US Army
1997-1999	Imaging Specialist, X-ray, C-Arm, Fluoro, CT. U.S. Army
2000-2000	X-ray tech, QA/QC Butzbach Health Clinic, Germany
2002-2002	Teaching Assistant, Physics. University of Applied Sciences Giessen Germany
2002-2006	X-ray tech, X-ray, C-Arm, Fluoro. VA, Iowa City, Iowa (Part Time)
2003-2005	Research Assistant/CT Research Engineer, CT, $\mu$ CT, phantom development, QA/QC, Prospective and Retrospective Respiratory gating; College of Medicine. Radiology Department, University of Iowa, Iowa City
2005-2005	Teaching Assistant, Biomedical Engineering, University of Iowa
2005-2006	MRI Tech, Admin, QA/QC. HDI, Coralville, Iowa (Part Time)
2004-2006	CT Tech/Radiographer. Mercy Hospital, Iowa City (Part Time)
2006-2008	Medical Physics Resident, Department of Radiation Oncology, The University of Iowa Hospitals and Clinics, Iowa City, Iowa
2008-	Medical Physicist, Faculty, Department of Radiation Oncology, The University of Iowa Hospitals and Clinics, Iowa City, Iowa

**C. Honors, Awards, Recognitions, Outstanding Achievements**

1995	Army Achievement Medal
1996	Army Achievement Medal
1997	Army Commendation Medal
1997	Army Commendation Medal
1997	Honor Graduate, Academy of Health Sciences
1998	Army Achievement Medal
1998	Distinguished Honor Graduate, Academy of Health Sciences
2002	Stanley International Research Scholarship

**II. TEACHING**

**A. Teaching Assignments**

Spring 2002	Teaching Assistant, Physics, University of Applied Sciences Giessen-Friedberg.
Spring 2005	Teaching Assistant, Physics and Analysis of Medical Images, Biomedical Engineering, University of Iowa.
2007-	Lecturer, Radiation Therapy Physics, University of Iowa
2008-	Mentor, Medical Physics Residency Program
2008-	Clinical Training: Linear Accelerator Quality Assurance
2008-	Clinical Training: Imaging Quality Assurance

**B. Students supervised**

Residency Mentorship: Residency Outreach Rotation, Simulation and  
Verification Rotation

2007-2009	Xiaofei Ying
2007-2009	Vibha Chaswal
2009-2011	Junyi Xia
2010-	Yunfei Huang
2010-	Daniel Hyer
2011-	Christopher Mart

**C. Other contributions to institutional programs**

2006-	Radiation Oncology Chart Rounds
2006-	Radiation Oncology Case Conference
2006-	Medical Physics Journal Club
2008-	Translational Research Seminar

### III. SCHOLARSHIP/PROFESSIONAL PRODUCTIVITY

#### A. Publications or creative works

##### Peer-Reviewed Papers

1. Bayouth J, Bylund K, Siochi R, Shukla H, **Nixon E**, Buatti J: Validation of Treatment Planning and Delivery in Conventional Linear Accelerator without Flattening Filter (manuscript submitted to International Journal of Radiation Oncology, Biology, Physics, 2008).
2. Flynn R, Hartmann J, Bani-Hashemi A, **Nixon E**, Siochi R, Pennington E, Bayouth J: Dosimetric Characterization and Application of an Imaging Beam Line for Megavoltage Cone Beam Computed Tomography. Medical Physics 36, p 2181-2192, 2009.
3. Nelms D, Shukla H, **Nixon E**, Bayouth J, Flynn R: Assessment of Three Dead Detector Correction Methods for Cone Beam Computed Tomography. Medical Physics 36, p 4569-4576, 2009.

##### Abstracts

1. Saba OI, Beck KC, Chon D, **Nixon E**, Hoffman EA: Lung Volume Measurement Reproducibility Using Gated-Axial and Spiral Multi-Row Detector CT (MDCT). American Thoracic Society Conference, 2003.
2. Cong W, Kumar D, Kang Y, Sinn P, **Nixon E**, Mienel J, Suter M, Lihong VW, McLennan G, Hoffman EA, Wang G: In vivo Tomographic Imaging based on Bioluminescence. SPIE 5535, 212, 2004.
3. Walker NE, Olszewski ME, Wahle A, **Nixon E**, Sieren JP, Yang F, Hoffman EA, Rossen JD, Sonka M: Measurement of Coronary Vasoreactivity in Sheep using 64-Slice Multidetector Computed Tomography and 3-D Segmentation. Computer Assisted Radiology and Surgery Conference, 2005.
4. **Nixon E**, Recheis W, Ross AF, Auger M, Ying X, Underwood S, Schmidt J, DeSanctis GT, Hoffman EA: In Vivo and Ex Vivo Micro-CT of the Mouse Airway Wall. American Thoracic Society Conference, 2005.
5. Sieren JP, **Nixon E**, McLennan G, Hoffman EA: Dose and Reconstruction Kernel Effects on Quantitative CT-Based Measures of Lung Density and Regional Perfusion. American Thoracic Society Conference, 2005.
6. Thiesse J, DeRyk J, Bond S, Vislisis J, Hoffman EA, **Nixon E**, Reinhardt JM, Ross A, and McLennan G: Assessment of mouse lung fixation pressures using computed tomography, Proc. of American Thoracic Society Annual Meeting, 2005.

7. Taft P, **Nixon E**, McLennan G, Zabner J: Prevention of Pseudomonas Aeruginosa Pneumonia as Detected by Computed Tomography. UIHC Internal Medicine Research Presentations, 2005.
8. Recheis W, **Nixon E**, Thiesse J, McLennan G, Ross AF, Hoffman EA: In Vivo Micro-CT of the Mouse Lung. European Congress of Radiology, 2005.
9. Recheis W, **Nixon E**, Thiesse J, McLennan G, Ross AF, Hoffman EA: Optimization of Micro CT Scanning Procedures for In Vivo, In Situ and Ex Vivo Analysis of the Mouse Lung. The International Society for Optical Engineering Medical Imaging Conference, 2005.
10. Kumar D, Cong W, Thiesse J, **Nixon E**, Meinel J, Cong A, McLennan G, Hoffman EA, Ming J, Wang G: Image-guided simulation of bioluminescence tomographic imaging. Proc. SPIE 5746, 741, 2005.
11. **Nixon E**, Modrick JM, Jacobson GM: Retrospective Evaluation of Single Treatment Plan per Course vs. Plan per Fraction for High Dose Rate Vaginal Cylinders. Annual American Brachytherapy Society Conference, Brachytherapy 5 (2) 2006, 101.
12. **Nixon E**, Shukla H, Siochi R, Bayouth J: Evaluation of CT Extended Field of View Imaging Impact on Radiation Therapy Treatment Planning. American Association of Physicists in Medicine Annual Conference, 2007. Medical Physics 34 (6), 2007
13. Bayouth J, Shukla H, Pavord D, **Nixon E**, Siochi R: Treatment Planning Modeling and Dose Delivery Advantages of Standard Linac Without Flattening Filter. American Association of Physicists in Medicine Annual Conference, 2007. Medical Physics 34 (6), 2007
14. **Nixon E**, Modrick JM, Jacobson GM: Comparison of ICRU reference point rectal and bladder doses and 3D volumetric parameters for High Dose Rate (HDR) tandem and ovoid brachytherapy based on 2D versus 3D planning. Annual American Brachytherapy Society Conference, Brachytherapy 6 (2), 2007
15. Flynn R, Shukla H, **Nixon E**, Bayouth J: A quantitative assessment of the effects of a simple dead detector pixel correction method on megavoltage cone beam CT images. American Association of Physicists in Medicine Annual Conference, 2008.
16. Bayouth J, Byland K, Siochi R, Shukla H, **Nixon E**, Buatti, J: Validation of Treatment Planning and Delivery in Conventional Linear Accelerator without Flattening Filter. American Association of Physicists in Medicine Annual Conference, 2008.
17. **Nixon E**, Kim Y, Kearney W, Modrick J, Jacobson G, Bhatia S, Bayouth J: HDR Brachytherapy Tandem and Ovoid Titanium Applicator Safety Assessment in 3T MRI. Brachytherapy 7(2) p. 35, 2008.
18. Kim Y, **Nixon E**, Modrick J, Bhatia S, Jacobson G: On the Radiobiologic Implications for Intracavitary HDR Brachytherapy of Cervical Carcinoma:

Based on 3D CT Imaging and GYN GEC-ESTRO Recommendations. Brachytherapy 7(2) p. 168, 2008.

19. Jacobson GM, Bhatia S, Modrick J, Kim Y, Bender D, **Nixon E**, Smith BJ. High Dose Rate Intracavitary Brachytherapy Combined with External Radiotherapy for Medically Inoperable Endometrial Cancer Brachytherapy 7(2), 2008.

**B. Areas of Research Interest and Current Projects**

Quantitative assessment of CT image guided treatment planning. Treatment planning, delivery and outcomes validation using conventional linear accelerator without flattening filter to achieve high dose rates. Electronic portal imaging and mega-voltage cone beam standardized assessment.

**C. Invited lectures**

- July 2007 Invited Speaker, Advances in CT Technology. Optimizing the Clinical Use of Imaging in Radiation Oncology. University of Iowa.
- April 2008 Invited Speaker, Imaging for Radiation Oncology: CT and CT Physics. Spring Iowa RAD-ONC Conference.
- March 2009 Invited Speaker, Advances in CT Technology. Optimizing the Clinical Use of Imaging in Radiation Oncology. University of Iowa.
- April 2010 Radiation Safety. Radiology Symposium 2010. Great River Medical Center, Burlington, IA

**IV. SERVICE**

**A. Memberships in Professional Organizations**

- 1997- US Army Medical Regiment
- 2005- American Society of Radiologic Technologists
- 2005- American Association of Physics in Medicine
- 2005- MRV Chapter of AAPM
- 2007- American Brachytherapy Society
- 2008- American College of Medical Physics
- 2009- ASTRO

**Institutional Committees**

- 2008- Radiation Oncology Physics Residency Selection Committee.
- 2008- Medical Physics Curriculum Committee
- 2008- Radiation Safety Committee: outreach clinic, Clinton, IA
- 2008- Radiation Safety Committee: outreach clinic, Burlington, IA

**B. Clinical assignments since last promotion**

1. **Clinical physics support** for all radiation therapy services, including central nervous system, pediatric, breast, gynecologic, thoracic, abdominal, prostate, and head and neck.
2. Clinical physics support for **special procedures**, including: stereotactic Radiosurgery, stereotactic body radiotherapy, intensity modulated radiation therapy, high dose rate brachytherapy, prostate seed implants, Image guided radiation therapy, gated imaging and treatment delivery, seed assay, patient assay
3. Primary provider of **outreach physics support** to Burlington, IA site.
4. Primary provider of outreach physics support to Clinton, IA site.
5. Provide physics support at Iowa City, IA site.
6. **Manage** treatment systems (TPS, VR, linac, imaging) at two sites. Provide physics, QA and management support of the following environments: Pinnacle/Mosaiq/Varian, Eclipse/Aria/Varian, Pinnacle/Varis/Varian, Pinnacle/Aria/Varian, Pinnacle/Multi-Access/Varian, CMS XiO/Multi-Access/Elekta, Pinnacle/Mosaiq/Elekta, Pinnacle/Lantis/Siemens
7. **Perform treatment planning** including 3D conformal, IMRT, respiratory gated, brachytherapy, QA/QC, backup. LDR/HDR planning.
8. **Commissioning** of Moduleaf system (2007), IMRT program (2008), TPS photons and electrons (2008, 2009, 2011), Record and Verify systems (2009, 2010, 2011), PSI program (2009), 5 CT scanners (2003, 2004, 2005, 2008, 2010), respiratory gating imaging program (2003).
9. **Capital Equipment acquisition**: determination, selection criteria, negotiation, commission, implementation, provide user training, develop QA/QC. (CT, RV system, Treatment planning system, QA equipment, On board imaging)
10. **QA/QC** Daily, monthly, Annual QA implementation and review and calibration of: Varian, Siemens, Elekta **Linacs**. Toshiba, Philips, GE, Siemens **CT** (utilizing ACR accreditation technique). Siemens, Hitachi **MRI** (utilizing ACR accreditation technique). Pinnacle, Eclipse, CMS XiO **Treatment planning System**. Variseed, Varisource, Brachyvision **Brachytherapy**. **Ultrasound** for Seed implants. Ximatron and Toshiba conventional simulators. BAT, Zmed SonArray/Radiocam, Exactrac **guidance systems**.

**C. Reviewer for Journal Manuscripts**  
Medical Physics