ERIC D. MORRIS

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Detroit, MI 48202

EDUCATION:

- Wayne State University (Advisor: Carri Glide-Hurst, Ph.D.) — Detroit, MI
  - Ph.D. in Medical Physics – 3.97 GPA — Expected Graduation: July, 2020
  - Dissertation Topic: "Cardiac Substructure Segmentation and Motion Management in Radiation Therapy"
- Michigan Technological University *Magna Cum Laude* — Houghton, MI
  - Bachelor of Science in Physics – 3.71 GPA — May 2015
- Delta College — University Center, MI
  - Associates in Science – 3.95 GPA — 2013
  - President's Award for Excellence in Honors
  - Honors Certificate for project in Einsteinian Relativity

WORK EXPERIENCE AND POSITIONS:

- Graduate Research at Henry Ford Cancer Institute — 2015-Present
  - Developed and validated a novel 3D U-Net deep learning pipeline for improved automatic segmentation of cardiac substructures including difficult to segment coronary arteries
  - Generated and validated MRI/CT atlas for cardiac substructure segmentation
  - Compared geometric equivalence of digitally reconstructed radiographs from CTs and synthetic CTs for brain cancer patients
  - Characterized a novel exponential 4DCT reconstruction algorithm in phantom and patient cohort to determine clinical impact
- Graduate Research Assistant at Wayne State University — 2016-2017
  - Teaching Undergraduate Radiotherapy Physics
  - Graduate Teaching Assistant:
    - Imaging Physics, Advanced Imaging Physics
    - Introduction to Radiological Physics, Dosimetry
- Graduate Research at Wayne State University — 2015-2016
  - Assisted in categorizing and processing data for meningioma and glioblastoma studies
- Ford Motor Company Prototype Engineer — 2015
  - Oversee and manage new model program launches for automotive prototypes
- Nexteer Automotive Engineer — 2012-2014
  - Conducted studies to cut cost on ball bearing scrap
  - Design vehicle sweep bench test to simulate vehicles hand wheel torque
  - Operate test stand to capture rack and pinion center hysteresis
  - Six Sigma Green Belt
- Laboratory Instructor at Michigan Technological University — 2014-2015
  - Teaching sections in sophomore Electronics and Theoretical Physics I
- Research Assistant at Michigan Technological University — 2014-2015
  - Projects in laser speckle contrast imaging for the improvement of Allen's test

SKILLS AND CERTIFICATIONS:

- Certificate course in Radiomics and Deep Learning
- Programming Experience: C++, C, SPSS, Python, LaTeX, Linux, Java, Elastix and MATLAB
- Deep Learning Experience: Keras, Tensorflow, CUDA, Anaconda, and PyTorch
- Projects: Solid Works, Unigraphics NX, AutoCAD, and Mathematica
- Image Processing: MIM, ImageJ, K-Pacs, Eclipse, R, and VelocityAI

AWARDS AND HONORS:

- 2018 Best general medical physics paper in Journal of Applied Clinical Medical Physics (JACMP) 2019
- AAPM National Meeting Medical Physics SLAM competition 2nd Place 2018
- AAPM Great Lakes Chapter Medical Physics SLAM competition 1st Place 2018, 2019
- WSU Graduate Student Research Award competition 1st Place 2018
- AAPM Expanding Horizons Travel Grant Recipient 2018
- AAPM Great Lakes Chapter Young Investigators Symposium 1st Place 2018, 2019
- AAPM Great Lakes Chapter Young Investigators Symposium Runner-Up 2017
- Mr. and Mrs. Virciglio Scholarship Recipient 2017, 2018, 2019
- WSU Graduate Professional Scholarship Recipient 2016, 2017
- WSU Graduate Student Professional Travel Award 2016, 2017, 2018, 2019
- Mr. and Mrs. Moses Ziegler Scholarship Recipient 2016-2017
- Mayes Scholarship Recipient 2014-2015
- Hebert Scholarship Recipient 2013-2014
- Congressional Award in National Service 2011
- Saginaw Valley State University Math Competition Winner 2010
- Michigan Mathematics Prize Competition Winner 2010

LEADERSHIP AND SERVICE:

- AAPM Working Group on Student and Trainee Research Member 2018-Current
- East English Village Detroit Community Outreach Coordinator 2018-Current
- East English Village Detroit Street Representative 2017-Current
- MRI in Radiation Therapy Meeting Student Volunteer, Ann Arbor, MI 2016
- Treasurer for the Society of Physics Students 2014-2015
- President for the Power and Energy Society 2013-2015
- Eagle Scout from Troop 321 2011
- Peace Corps, AmeriCorps National Civilian Conservation Corps 2010-2011
    - Congressional Award in National Service
    - Natural Disaster First Responder for Joplin Missouri Class IV Tornado

PROFESSIONAL MEMBERSHIPS:

- American Association of Physicists in Medicine (AAPM), Student Member 2015-Present
- Great Lakes Chapter of the AAPM, Student Member 2015-Present
- International Society of Electrical and Electronics Engineers (IEEE) 2013-2016
- Society of Physics Students (SPS) 2013-2017
- Power and Energy Society (PES) 2013-2016

PUBLISHED MANUSCRIPTS:

[1] **E Morris**, A Ghanem, M Pantelic, E Walker, X Han, C Glide-Hurst, "Cardiac Substructure Segmentation and Dosimetry Using a Novel Hybrid Magnetic Resonance and Computed Tomography Cardiac Atlas." International Journal of Radiation Oncology* Biology* Physics 103, no. 4 (2019): 985-993.

[2] **E Morris**, R Price, J Kim, L Schultz, I Chetty, C Glide-Hurst. "Using synthetic CT for partial brain radiation therapy: Impact on image guidance." Practical radiation oncology 8, no. 5 (2018): 342-350.

[3] ***E Morris**, J Kim, P Klahr, C Glide-Hurst. "Impact of a novel exponential weighted 4DCT reconstruction algorithm." Journal of applied clinical medical physics (JACMP) 19, no. 6 (2018): 217-225.
**2018 Best general medical physics paper in JACMP*

MANUSCRIPTS UNDER REVIEW:

[1] C Miller, D Mittelstaedt, N Black, P Klahr, S Nejad-Davarani, H Schulz, L Goshen, X Han, **E Morris**, C Glide-Hurst, "Impact of CT Reconstruction Algorithm on Auto-segmentation Performance" *Under Revision in Journal of Applied Clinical Medical Physics*.

PUBLISHED ABSTRACTS:

[1] **E Morris**, A Ghanem, M Pantelic, E Walker, and C Glide-Hurst, "Cardiac Substructure Segmentation and Dosimetry Using a Novel Hybrid MR/CT Cardiac Atlas" AAPM 2018, International Journal of Radiation Oncology• Biology• Physics 45, no. 6 (2018): E700-E701.

[2] C Miller, D Mittelstaedt, N Black, P Klahr, S Nejad-Davarani, H Schulz, L Goshen, **E Morris**, and C Glide-Hurst. "Impact of CT Model-Based Iterative Reconstruction on Auto-Segmentation of Prostate Cancer Organs at Risk." In MEDICAL PHYSICS, vol. 45, no. 6, pp. E622-E622. 111 RIVER ST, HOBOKEN 07030-5774, NJ USA: WILEY, 2018.

[3] A Ghanem, **E Morris**, M Pantelic, E Walker, and C Glide-Hurst. "Toward Improved Cardiac Sparing: Development and Validation of a Hybrid MR/CT Cardiac Segmentation Atlas." International Journal of Radiation Oncology• Biology• Physics 102, no. 3 (2018): S194-S195.

[4] **E Morris**, M Moncion, P Sevak, S Weiss, K Garbarino, S Renisch, and C Glide-Hurst. "Impact of Bladder Filling On an MR-only Pelvis Radiotherapy Workflow: su-h2-gepd-j (a)-05." Medical Physics 44, no. 6 (2017): 2770.

[5] **E Morris**, R Price, J Kim, L Schultz, I Chetty, and C Glide-Hurst. "Performance of Synthetic Ct for Partial Brain IGRT: mo-ram-gepd-j (b)-01." Medical Physics 44, no. 6 (2017): 3039.

[6] D Mittelstaedt, P Klahr, S Nejad-Davarani, H Schulz, L Goshen, **E Morris**, and C Glide-Hurst. "Sensitivity of Auto-segmentation to Ct Reconstruction Algorithms: th-cd-601-12." Medical Physics 44, no. 6 (2017): 3302.

[7] **E Morris**, P Klahr, and C Glide-Hurst. "MO-DE-207A-03: Characterization of Potential Gains in a Novel Exponential 4DCT Reconstruction Algorithm." Medical Physics 43, no. 6Part30 (2016): 3700-3700.

[8] **E Morris**, P Klahr, and C Glide-Hurst, C., 2016. MO-DE-207A-12: Toward Patient-Specific 4DCT Reconstruction Using Adaptive Velocity Binning. Medical Physics, 43(6Part30), pp.3703-3703.

PROFESSIONAL PRESENTATIONS:

[1] "Cardiac Substructure Segmentation with Deep Learning for Improved Cardiac Sparing" AAPM Great Lakes Chapter Young Investigator Symposium 2019, May 13 2019, Detroit, MI

[2] "MED PHYS SLAM: Automatic Cardiac Substructure Segmentation for Improved Treatment Planning" AAPM National Meeting 2018, Jul 29-Aug 2, Nashville, TN

[3] "Cardiac Substructure Segmentation and Dosimetry Using a Novel Hybrid MR/CT Cardiac Atlas" AAPM National Meeting 2018, Jul 29-Aug 2, Nashville, TN

[4] "Cardiac Substructure Segmentation and Dosimetry Using a Novel Hybrid MR/CT Cardiac Atlas" AAPM Great Lakes Chapter Young Investigator Symposium 2018, Apr 24, Detroit, MI

[5] "Cardiac Substructure Segmentation and Dosimetry Using a Novel Hybrid MR/CT Cardiac Atlas" Wayne State University Young Investigator Symposium 2018, Jul 29-Aug 2, Detroit, MI

[6] "Performance of Synthetic CT for Partial Brain IGRT" AAPM Great Lakes Chapter Young Investigator Symposium 2018, Apr 18 2017, Detroit, MI

[7] "Characterization of Potential Gains in a Novel Exponential 4DCT Reconstruction Algorithm" AAPM 2016, Jul 31-Aug 4, Washington, D.C.

[8] "Toward Patient-Specific 4DCT Reconstruction Using Adaptive Velocity Binning" AAPM 2016, Jul 31-Aug 4, Washington, D.C.

[9] "Characterization of Potential Gains in a Novel Exponential 4DCT Reconstruction Algorithm" AAPM Great Lakes Chapter Young Investigator Symposium 2018, May 12 2016, Detroit, MI

REFERENCES:

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