

EMILY HAMMOND
Associate Professor of Teaching
Department of Engineering Education

Work Address

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EDUCATION

Ph.D., Biomedical Engineering, University of Iowa, May 2017
Dissertation: “Longitudinal medical imaging approaches for characterization of porcine cancer models”
Advisor: Jessica C. Sieren
Graduate Certificate in College Teaching, University of Iowa, December 2016
B.S., Biomedical Engineering, Milwaukee School of Engineering, May 2012

PROFESSIONAL EXPERIENCE

Director of Undergraduate Studies for Engineering Science
Dept. of Engineering Education Aug 2021 – Present
University at Buffalo, Buffalo, NY

Associate Professor of Teaching, Dept. of Engineering Education Jan 2024 – Present
University at Buffalo, Buffalo, NY

Assistant Professor of Teaching, Dept. of Engineering Education Aug 2017 – Dec 2023
University at Buffalo, Buffalo, NY

HONORS AND AWARDS

Teaching-As-Research (TAR) Fellowship Award, Center for the Integration of Research, Teaching, and Learning (CIRTL), August 2017
Teaching-As-Research (TAR) project proposal: “The Effect of Reading Quizzes on Student Test Scores in a Flipped Classroom”
Advisor: Erin Barnes
Ballard Seashore Dissertation Fellowship Award, University of Iowa, 2016 – 2017
Presidential Graduate Research Fellowship Award, University of Iowa, 2012 – 2016

TEACHING EXPERIENCE

University at Buffalo

1. Introduction to Programming for Engineers with C/C++ (EAS 240), Fall semester 2018 – 2023
2. Engineering Computations (EAS 230), Spring semesters 2018 – 2023

3. Small Groups for CHE107 Introduction to Chemistry for Engineers (EAS 107), Fall semester 2017 – 2023
4. Small Groups for MTH141 Calculus I (EAS 141), Fall semesters 2017 – 2023
5. Small Groups for MTH142 Calculus II (EAS 142), Spring semesters, 2022 – 2023
6. Small Groups for PHY107 Physics I (EAS117), Spring semester 2023
7. UB Seminar: The Places You Will Go (EAS 198), All semesters 2018 – 2023
8. UB Seminar: Grand Challenges for Engineers (EAS 199), Fall semester 2017 – 2020

University of Iowa

9. TA position: Fundamentals of Engineering: Electrical Circuits (ENGR 2120), Summer semester 2015 – 2017
10. Teaching practicum: Engineering Problem Solving II (ENGR 1300), Fall semester 2016
11. Teaching practicum: Systems, Instrumentation, and Data Acquisition (BME 2200), Fall semester 2015

PUBLICATIONS

Refereed Journal Articles

1. J. Uthoff, J. Larson, T.S. Sato, **E. Hammond**, K.E. Schroeder, F. Rohret, C.S. Rogers, D.E. Quelle, B.W. Darbro, R. Khanna, J.W. Weimer, D.K. Meyerholz, J.C. Sieren, “Longitudinal phenotype development in a minipig model of neurofibromatosis type 1”, *Scientific Reports*, 10: 5046 (2020) PMID: 32193437
2. J. Uthoff, N. Koehn, J. Larson S. K.N. Dilger, **E. Hammond**, A. Schwartz, B. Mullan, R. Sanchez, R. M. Hoffman, J. C. Sieren, "Post-Imaging Pulmonary Nodule Mathematical Prediction Models: Are They Clinically Relevant?", *European Radiology*, 29: 5367-5377 (2019) PMID: 30937590
3. **E. Hammond**, K.S. Chan, J.C. Ames, N. Stoyles, C.M. Sloan, J. Guo, J.D. Newell Jr., E.A. Hoffman, J.C. Sieren, “Impact of Advanced Detector Technology and Iterative Reconstruction on Low Dose Quantitative Assessment of Lung Computed Tomography Density in a Biological Lung Model”, *Medical Physics*, 45: 3657-3670 (2018) PMID: 29926932
4. K.A. White, V.J. Swier, J.T. Cain, J.L. Kohlmeyer, D.K. Meyerholz, M.R. Tanas, J. Uthoff, **E. Hammond**, H. Li, F.A. Rohret, A. Goeken, C. Chan, M.R. Leidinger, S. Umesalma, M.R. Wallace, R.D. Dodd, K. Panzer, A.H. Tang, B.W. Darbro, A. Moutal, S. Cai, W. Li, S.S. Bellampalli, R. Khanna, C.S. Rogers, J.C. Sieren, D.E. Quelle, J.M. Weimer, “A porcine model of neurofibromatosis type 1 that mimics the human disease”, *Journal of Clinical Investigation*, JCI Insight, 3(12): e120402 (2018) PMID: 29925695
5. **E. Hammond**, C. Sloan, J.D. Newell, J.P. Sieren, M. Saylor, C. Vidal, S. Hogue, F. De Stefano, A. Sieren, E.A. Hoffman, J.C. Sieren, “Comparison of Low and Ultra-Low Dose Computed Tomography Protocols Through Quantitative Lung Airway and Parenchyma Assessment”, *Medical Physics*, 44(9): 4747-4757 (2017) PMID: 28657201
6. **E. Hammond**, J.D. Newell, S.K.N. Dilger, N. Stoyles, J. Morgan, F.A. Rohret, J.P. Sieren, D.R. Thedens, E.A. Hoffman, D.K. Meyerholz, J.C. Sieren, “Computed Tomography and Magnetic Resonance Imaging for Longitudinal Characterization of Lung Structure Changes in a Yucatan Miniature Pig Silicosis Model”, *Special Issue: Swine in Translational Research*, *Toxicologic Pathology*, 44(3): 373-81 (2016) PMID: 26839326

7. S.K.N. Dilger, J. Uthoff, A. Judisch, **E. Hammond**, S.L. Mott, B.J. Smith, J.D. Newell, Jr., E.A. Hoffman, J.C. Sieren. “Improved pulmonary nodule classification utilizing quantitative lung parenchyma features”, *J. Med. Imag.* 2(4): 041004 (2015) PMID: 26870744
8. J.C. Sieren, D.K. Meyerholz, X. Wang, B. Davis, J. D. Newell, **E. Hammond**, J. Rohret, F. Rohret, J. T. Struzynski, J.A. Goeken, P.W. Naumann, M.R. Leidinger, J. Hagen, R. VanRheeden, B.W. Darbro, D. E. Quelle, C.S. Rogers, “Development and translational imaging of a TP53 porcine tumorigenesis model”, *Journal of Clinical Investigation*, 124(9): 4052-66 (2014) PMID: 25105366

Refereed Proceedings Articles

1. **E. Hammond**, J. N. Mitchell, J. Swenson. “Students utilization of Discord messaging platform in an introduction to MATLAB course”, *Proceedings of ASEE Annual Conference & Exposition* (2022)
2. **E. Hammond**, S.K.N. Dilger, N. Stoyles, A. Judisch, J. Morgan, J.D. Newell Jr., J.C. Sieren. “Consistent and reproducible positioning in longitudinal imaging for phenotyping genetically modified swine”, *Proceedings of SPIE Medical Imaging*, (2015)
3. S.K.N. Dilger, A. Judisch, J. Uthoff, **E. Hammond**, J.D. Newell Jr., J.C. Sieren. “Improved pulmonary nodule classification utilizing lung parenchyma texture features”, *Proceedings of SPIE Medical Imaging* (2015)

Abstracts and Other Conference Presentations

1. **E. Hammond**, D.E. Quelle, M.H. Abou Alaiwa, K. Stark, M. Saylor, S. Hogue, F. Rohret, J.D. Newell, R.M. Sheehy, U.S. Shaik Amjad, D.K. Meyerholz, B.W. Darbro, C.S. Rogers, J.C. Sieren, “Development of a Lung Cancer Pig Model: Non-invasive Characterization with Computer Tomography”, *American Thoracic Society* (Washington D.C, USA, 2017)
2. J. Uthoff, N. Koehn, S.K.N. Dilger, **E. Hammond**, F. De Stefano, M. Muralidharan, E.A. Hoffman, J.D. Newell, R. Sanchez, J.C. Sieren, “Longitudinal Comparison of Four Mathematical Prediction Models of Solitary Pulmonary Nodules Imaged on Computed Tomography”, *American Thoracic Society* (San Francisco, CA, USA, 2016)
3. **E. Hammond**, F. De Stefano, S.K.N. Dilger, E.A. Hoffman, J.D. Newell, J.C. Sieren, “Multi-Level Registration of Multi-Modality and Longitudinally Acquired Thoracic Images for Lung Assessment in a Swine Exposure Model”, *American Thoracic Society* (San Francisco, CA, USA, 2016)
4. S.K.N. Dilger, J. Uthoff, **E. Hammond**, M. Ahuja, M. Gailey, A. McGruder, J.D. Newell, E.A. Hoffman, J.C. Sieren, “Identifying Longitudinal Computed Tomography Biomarkers of Malignancy to Improve Noninvasive Lung Cancer Diagnosis”, *American Thoracic Society* (San Francisco, CA, USA, 2016)
5. S.K.N. Dilger, J. Uthoff, **E. Hammond**, S.L. Mott, B.J. Smith, M. Ahuja, M. Gailey, A. McGruder, J.D. Newell, E.A. Hoffman, J.C. Sieren, “Clinical Computer-Aided Diagnosis Tool for Pulmonary Nodule Characterizations Shows Improved Performance with the Inclusion of Nodule-Associated Parenchymal Features”, *American Thoracic Society* (San Francisco, CA, USA, 2016)
6. C.M. Sloan, J.C. Sieren, J.D. Newell Jr, J. Sieren, M. Shirk, C. Vidal, S. Hogue, F. DeStefano, **E. Hammond**, E.A. Hoffman, “Comparison of Low and Ultra-Low Dose Computed Tomography Protocols Through Quantitative Lung Airway Assessment”, *American Thoracic Society* (San Francisco, CA, USA, 2016)

7. T.M. Dougherty, J.D. Newell Jr., C.M. Sloan, **E. Hammond**, S. Hogue, E.A. Hoffman, “3rd Generation Dual Source/Dual Energy CT Allows for Reduction in Radiation Dose and Iodine Concentration Used to Assess Pulmonary Perfused Blood”, *American Thoracic Society* (San Francisco, CA, USA, 2016)
8. J.C. Sieren, K.S. Chan, J.P. Sieren, J. Ames, J. Guo, **E. Hammond**, N. Stoyles, A. Judisch, J.D. Newell Jr., E.A. Hoffman, “Impact of stellar detector technology and safire reconstruction on low dose quantitative assessment of lung computed tomography density”, *American Thoracic Society* (Denver, CO, USA, 2015)
9. A. Judisch, N. Stoyles, **E. Hammond**, C. Sloan, E.A. Hoffman, J.C. Sieren, “Analysis of dosage effects on the comparison of in-vivo and fixed ex-vivo airway measurements from computed tomography scans”, *American Thoracic Society* (Denver, CO, USA, 2015)
10. J.C. Sieren, D.K. Meyerholz, X. Wang, B. Davis, J.D. Newell Jr., **E. Hammond**, J. Rohret, F. Rohret, J. Struzynski, J.A. Goeken, P.W. Naumann, M.R. Leidinger, J. Hagen, R. VanRheeden, B.W. Darbro, D.E. Quelle, C.S. Rogers, “Translational imaging of tumorigenesis in a TP53 porcine cancer model”, *Swine Biomedical Research* (Raleigh, NC, USA, 2014)
11. J.P. Sieren, J.D. Newell Jr., J. Ames, **E. Hammond**, J. Guo, E.A. Hoffman, J.C. Sieren, “Quantitative Assessment of Lung CT Density Using New CT Detector Technology to Lower Radiation Exposure in a Pig Model”, *American Thoracic Society* (San Diego, CA, USA, 2014)
12. N. Stoyles, **E. Hammond**, J. Morgan, K. Iyer, E.A Hoffman, J.C Sieren, “Closed-Loop Perfusion Fixation for the Validation of Quantitative Computed Tomography Metrics”, *American Thoracic Society* (San Diego, CA, USA, 2014)
13. **E. Hammond**, N. Stoyles, S.K.N. Dilger, J. Morgan, F. Rohret, C.S. Rogers, J.D. Newell Jr., J.C. Sieren, “Phenotyping genetically modified swine models: Systematic detection of pulmonary abnormalities in computed tomography”, *American Thoracic Society* (San Diego, CA, USA, 2014)
14. J.C. Sieren, X. Wang, B. Davis, J.D. Newell Jr., **E. Hammond**, J. Rohret, F. Rohret, J. Struzynski, J.A. Goeken, P.W. Naumann, M.R. Leidinger, J. Hagen, R. Van Rheeden, B.W. Darbro, D.E. Quelle, D.K. Meyerholz, C.S. Rogers, “Translational Imaging of Tumorigenesis in a TP53 Porcine Cancer Model”, *American Association for Cancer Research* (San Diego, CA, USA, 2014)
15. **E. Hammond**, S.K.N. Dilger, N. Stoyles, A. Judisch, J. Morgan, F. Rohret, D.R. Thedens, J.D. Newell Jr., C.S. Rogers, E.A. Hoffman, J.C. Sieren, “Multi-Imaging Modality, Longitudinal, Whole Body Screening Development for Phenotyping Genetic Disease Models in Swine”, *American Thoracic Society* (Philadelphia, PA, USA, 2013)

PROFESSIONAL ACTIVITIES

Leadership

ASEE St. Lawrence Section Chair, AY 2021 – 2022, AY 2022 – 2023

ASEE St. Lawrence Section Administrator, 2019 – 2021

Other Service

2024 ASEE, St. Lawrence Section Annual Conference, Papers Chair

2019 ASEE, Zone 1 Conference Papers Chair

Society of Women in Engineering: Poster and Rapid File Abstract Judge, Summer 2019, 2021, 2023

Membership in Professional and Honor Societies

American Society for Engineering Education (ASEE), Member, April 2017 – Present
International Society for Optics and Photonics (SPIE), Student Member, 2014 – 2015
IEEE, Student Member, 2010 – 2012

UNIVERSITY SERVICE

School Committees

Reviewer of commencement speeches, Spring 2024

Department Committees

Search Committee Member: Online Engineering Science Program Director, 2023 – 2024
Search Committee Member: Academic Advisor, Fall 2023
Engineering Education Curriculum Committee Member, Graduate Certificate and PhD Programs, 2018 – 2019
Search Committee Member: Department of Engineering Education Chair, 2018 – 2020