Temple University | Bioengineering
College of Engineering

Home:
7326 Ruskin Rd
Philadelphia Pa 19151

Phone (mobile):
484-502-4541

I. Professional Preparation

Temple University, Philadelphia, Pa **May 2021**
Doctorate in Biomedical Engineering
Dissertation: "Mobile Phone Based Transcutaneous Bilirubinometer"

Future Faculty Development **March 2019**
2019 IGNITE W&M Future Faculty Development Program
William and Mary, Williamsburg, VA

Temple University, Philadelphia, Pa December 2016
Master of Science in Biomedical Engineering

Cheyney University of Pennsylvania, Cheyney, Pa **May 2010**
Bachelor of Arts in Chemistry

Pennsylvania State University, University Park, Pa **August 2008**
Associate Degree, Nanofabrication Manufacturing and Technology

- Trained on Applied Materials P5000 MERIE – Dektak 6M profilometer, Plasma Therm SLR 720 RIE – Tencor Alpha Step 500, Edwards 306A thermal evaporator – Veeco diCP II AFM, Cooke Vacuum CVE 301 thermal evaporator – Leica SEM 440, Cooke Vacuum CVE 301 thermal evaporator – Technique 80 micro RIE, Gaertner 1155-8 ellipsometer, and Karl Suss MJB3 contact lithography system in a state-of-the-art class 10/100 clean room.

V. Honors and Awards

Keystone Honors Student (2006-2010)
Bond-Hill Scholar (2017-2020)
Research Awards

- 2017 and 2018 Undergraduate Mentee's Winners of Bioengineering Undergraduate Summer Research Symposium Outstanding Poster.
- 2019 2nd place Bioengineering Graduate Summer Research Symposium Outstanding Poster.

IV. Publications

Manuscripts in Preparation

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1. **B. Harrison**, A. Dumont, J. So, S. Chandragiri, Z. McCormack, A. Nwaba, H. Weitkamp, and C.A. Patil, "Mobile Phone Based Transcutaneous Bilirubinometry Preclinical Study" in preparation for submission to *Biomedical Optics Express*.
2. A. Dumont, **B. Harrison**, J. So, S. Chandragiri, and C.A. Patil, "Monte-Carlo Modeling of Melanin Dependent Variability in Transcutaneous Bilirubinometry" in preparation for submission to *Biomedical Optics Express*.

Conference Abstracts/Proceedings

1. A.P Dumont, Y. Sun, **B. Harrison**, J. So, and C.A. Patil "Validation of an Accelerated Raman Monte-Carlo Model for Determining Spatial and Spectral Thresholds for Calcification Detection in Tissues", BMES Annual Conference, October 16-19, 2019, Philadelphia, PA (poster).
2. **B. Harrison**, A.P. Dumont, Z. McCormick, A. Nwaba, S. Grossarth, H. Weitkamp, and C.A. Patil, "Development and Validation of a Mobile Phone Based Transcutaneous Bilirubinometer", BMES Annual Conference, October 16-19, 2019, Philadelphia, PA.
3. **B. Harrison**, A.P. Dumont, J. So, S. Chandragiri, A. Nwaba, S. Grossarth, Z. McCormick, H. Weitkamp, N. Lawal, A. Muhammed, Z.L. Farouk and C.A. Patil**.** "Development of a Mobile Phone Based Transcutaneous Bilirubinometer," Northeastern Biomedical Engineering Conference (NEBEC), March 20, 2019, New Brunswick, NJ (oral).
4. **B. Harrison**, A. Dumont, Z. McCormack, H. Weitkamp, and C.A. Patil, "Mobile Phone Based Transcutaneous Bilirubinometry Preclinical Study" Biomedical Engineering Society (BMES) Annual Conference, October 18, 2018, Atlanta, GA (poster).
5. Y. Sun, M. Haifler, **B. Harrison**, A.P. Dumont, and C.A. Patil, "Two-stage Local Outlier Factor for Multicariate Identification of Outliers in Optical Spectroscopy and Imaging", Biomedical Engineering Society (BMES) Annual Conference, October 18, 2018, Atlanta, GA (poster).
6. N. Mucciolo, K. Sareeram, **B. Harrison**, A. Dumont and C.A. Patil, "Development of New Reference Standards in Mobile Phone-Based Bilirubinometry", BMES annual conference, Atlanta GA, October 18, 2018. (poster).
7. **B. Harrison**, A. Dumont, Z. McCormack, A. Nwaba, H. Weitkamp, and C.A. Patil, "Development of the 2nd generation Mobile phone based transcutaneous bilirubinometer", Northeastern Biomedical Engineering Conference (NEBEC) March 30, 2018, Philadelphia, PA (oral).
8. **B. Harrison**, A. Dumont, Z. McCormack, H. Weitkamp, and C.A. Patil, "Mobile Phone Based Transcutaneous Bilirubinometry", Biophotonics in Low Resource Settings III, 2018 SPIE Photonics West, San Francisco California (oral).
9. J. So, S. Chanragiri, **B. Harrison**, A. Dumont, and C.A. Patil, "Optical Phantoms for Mobile Based Diagnosis" accept for poster presentation at BMES annual conference, Phoenix AZ, October 12-15, 2017.

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10. A. Dumont, **B. Harrison**, Z.T. McCormick, N. Ganesh-Kumar, C.A. Patil, "Development of mobile phone based transcutaneous bilirubinometry" presented at Optics and Biophotonics in Low-Resource Settings III, SPIE Photonics West, San Francisco California, Jan 29, 2017 (Oral).

III. Appointments and Teaching Experience

Professional Tutor **Aug 2015 - Present**
Academic Success Center, Cheyney University, Cheyney, Pa

- Supplementary Instruction Services
  - Tutoring students individually and in small group settings in math, science, oral and written communication.
  - Assisting students in developing in-class and out-of-class strategies for academic success.
- Mentored first-generation/low-income college students.
- Career Counseling

Adjunct Professor, Biology Lab **Fall 2020**
General Science Department, Cheyney University, Cheyney, Pa

- Asynchronous Lab Instruction
- Instructor Teaching Rating 4.8/5.0

Adjunct Professor, Bionic Human **Spring 2020**
Department of Bioengineering, Temple University, Philadelphia, Pa

- Lectures on Bioethics, Domestic and Global Healthcare, Current Medical Technologies.
  - Promoting critical thinking and communication skills.
- Instructor Teaching Rating 4.9/5.0

Graduate Teaching Assistant **Spring 2019 - Fall 2020**
Frontiers in Bioengineering
Department of Bioengineering, Temple University, Philadelphia, Pa

- Graded variety of written assignments (scientific proposal sections, special topics reviews)

Graduate Research Assistant
2017 - Present
Optical Diagnostics Research Laboratory
Department of Bioengineering, Temple University, Philadelphia, Pa

- Developed Mobile Phone Based Transcutaneous Bilirubinometer.
- Organized multidisciplinary teams, project planning and execution activities.
- Mentored undergraduate research students.

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- 2017 and 2018 Winners of Bioengineering Undergraduate Summer Research Symposium Outstanding Poster.

- Submitted and presented abstracts/proceedings at multiple scientific conferences.

II. Related Research/Lab Experience

IBM T.J. Watson Research Center **2010 - 2014**
Engineer Assistant, Yorktown Heights, NY

- TEM sample prep for failure analysis.
- Cut samples for FIB cross sectioning, in-situ and ex-situ samples.
- Polishing TEM samples and SEM Cross Sectioning.
- Maintained lab and ordered supplies.
- Trained on FIB 200TEM/ Dual Beam FIB 450, Cr tool/ Au Coat tool/ TEOS coating tool, tripod polishing, laser marking tool, and OSHA Yearly Safety.

U.S. Departement of Agriculture **Aug 2010 – Dec 2010**
Lead Lab Technician - Catfish Study, Philadelphia, Pa

- Collected data each week and summarized a report.
- Tested fish for bacteria including e. coli and salmonella by incubating the pieces in different solutions.
- Maintained a safe working environment, lab cleanliness, and stocked lab supplies.

Cheyney University of Pennsylvania **May 2010 – Aug 2010**
Summer Lab Assistant – Plant Alkaloid Extraction Study, Philadelphia, Pa

- Extracted chemicals from underwater plants that had been collected in Jamaica.
- Performed Alkaloid test on herpes II virus and TLC of plant extraction.