

DIANE MARIE BERNARD UWACU

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EDUCATION

Ph.D. in Computer Science

Texas A&M University, College Station, TX

August 2015 - Present

Advisor: Nancy M. Amato

Research Focus: Topology-based Motion Planning Algorithms applied to robotics and Protein-ligand interactions

Visiting scholar

University of Illinois Urbana-Champaign, IL

May 2019 - Present

B.S. in Computer Science, Oklahoma Christian University, Edmond, OK August 2011 - May 2015
3.83/4.00GPA Magna Cum Laude. Alpha Chi University Honors.

PROFESSIONAL EXPERIENCE

Research Assistant

Parasol Lab, Texas A&M University

August 2015 - Present

Studying motion planning algorithms applications to robots' safe path planning and protein-drug molecule interactions. Developing topology-based algorithms for fast discovery of important regions to optimize planning.

Teaching Assistant

AI4ALL Try AI

March 2020 - April 2020

Taught an online program that offers an introduction to computer science and artificial intelligence, ethical issues surrounding AI implementation, and tech career.

College of Engineering, Texas A&M University

August 2016 - May 2019

Scheduled speakers and organized the Engineering Honors Seminar class for an average of 300 Engineering students. Organized programs to help students choose their major.

AggieSTEM, Department of Education, Texas A&M University

June 2017 - August 2017

Taught computer science to middle and high school students during summer camps. Used BooleanGirl, a Raspberry pi toolkit, to teach fundamental Computer Science concepts.

Math, Information and Computer Sciences Department, Oklahoma Christian University August 2012 - April 2015

Assisted in labs and graded assignments for a class of 20 students for Intro to Information Systems, Programming I and II.

Graduate Assistant

Engineering Honors, Texas A&M University

June 2017 - May 2019

Maintained Engineering Honors websites for the college as a front-end and back-end developer.

Undergraduate Research Intern

Department of Computer Science and Engineering, Texas A&M University June 2014 - December 2014

Through the Computing Research Association-Women Distributed Research Experiences for Undergraduates (CRA-W DREU), under the supervision of Dr. Nancy M. Amato. Worked on an adaptive strategy for motion planning, and helped a PhD student work on her submission for publication.

PEER REVIEWED CONFERENCE AND WORKSHOP PUBLICATIONS

- [1] Diane Uwacu, Abigail Ren, Shawna Thomas, and Nancy M. Amato. 2020. Using Guided Motion Planning to Study Binding Site Accessibility. In Proceedings of the 11th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (BCB '20), September 21–24, 2020, Virtual Event, USA. ACM, New York, NY, USA, 10 pages. - <https://doi.org/10.1145/3388440.3414707>, to appear
- [2] Read Sandstrom, Diane Uwacu, Jory Denny, Nancy M. Amato, “Topology-Guided Roadmap Construction with Dynamic Region Sampling,” IEEE Robotics and Automation Letters (RA-L), 2020, to appear
- [3] Diane Uwacu, Chinwe Ekenna, Shawna Thomas, Nancy Amato, ”The Impact of Approximate Methods on Local Learning in Motion Planning,” In 1st International Workshop on Robot Learning and Planning (RSS-RLP), Ann Arbor, MI, USA, June, 2016.
- [4] Chinwe Ekenna, Diane Uwacu, Shawna Thomas, Nancy Amato, ”Improved Roadmap Connection via Local Learning for Sampling Based Planners,” In Proc. IEEE/RSS Int. Conf. Intel. Rob. Syst. (IROS), pp. 3227-3234, Hamburg, Germany, Oct 2015.
- [5] Chinwe Ekenna, Diane Uwacu, Shawna Thomas, Nancy Amato, ”Studying Learning Techniques in Different Phases of PRM Construction,” In Machine Learning in Planning and Control of Robot Motion Workshop (IROS-MLPC), Hamburg, Germany, Oct 2015.

HONORS AND AWARDS

Scholarships and Fellowships

McMillan Scholarship: Best student in Math and Computer Science, Edmond, OK	January 2014
McBroom Scholarship: Best student in Math and Computer Science, Edmond, OK	January 2013
Rwandan Presidential Scholarship	August 2011
Four year full scholarship to pursue a bachelor’s degree at Oklahoma Christian University. Awarded for excellence on the final high school national exam.	

Awards and Travel Grants

Travel grant to CRA-WP URMD Grad Cohort Conference, Austin, TX	March 2020
Workshop organized by Computing Research Association - Widening Participation (CRA-WP) for Underrepresented Minorities and Persons with Disabilities (URMD).	
Travel grant to CRA-W Grad Cohort Conference, Honolulu, HI	April 2019
WAFR 2018 Robot Guru Workshop Fellow, Mérida, Mexico	December 2018
Travel grant to CRA-W Grad Cohort Conference, San Francisco, CA	April 2018
Travel grant to Grace Hopper Celebration of Women in Computing, Orlando, FL	October 2017
Travel grant to CRA-W Grad Cohort Conference, Washington, D.C.	April 2017
Travel grant to Grace Hopper Celebration of Women in Computing, Houston, TX	October 2016.
Travel grant to ACM Richard Tapia Celebration of Diversity in Computing, Austin, TX	September 2016

SERVICE AND PROFESSIONAL ACTIVITIES

Leadership and Volunteering Service

President: Aggie Women In Computer Science (AWICS), ACM-W chapter August 2017 - July 2018
Lead a committee of 15 students to organize social and professional development events. Organized the Ninth AWICS Leadership Workshop (April 6, 2018). Organized research and industry-led career-building events. Mentored incoming undergraduate and graduate students.

Volunteer: IEEE International Conference on Robotics and Automation, Seattle, WA May 2015

Student member, ACM

Student member, IEEE Robotics and Automation Society.

Mentoring Activities

Hopper: Grace Hopper Celebration of Women in Computing, Houston, TX, October 2016.

2016 Robotics: Science and Systems Conference (RSS), Ann Arbor, MI, June 2016.

Table Mentor: *Becoming a Robot Guru 2: Integrating Science, Engineering and Creativity Workshop*.

Graduate student mentor for student researchers in the Parasol Lab:

Abigail Ren: CRA-W DREU intern, Summer 2019

Bonnie Wang: CRA-W DREU intern, Summer 2019

Regina Rex: CRA-W DREU intern, Summer 2019

Everett Yang: Undergraduate Researcher, Fall 2017 to Spring 2019

Ankit Ramchandani: Undergraduate Researcher, Summer 2017

Nicholas Charchenko: Undergraduate Researcher, Summer 2017

Anthony Enem: CRA-W DREU intern, Summer 2016

Benjamin Poter: High School student intern, Summer 2016

Antoine Couybes and Thomas Martin: Exchange students from Institut Supérieure d'Électronique de Paris (ISEP), Spring 2017

Reviewer for scientific conferences and journals

AAAI Conference on Artificial Intelligence (AAAI), [Conference]

ACM Conference on Bioinformatics, Computational Biology and Biomedicine (BCB), [Conference]

IEEE International Conference on Bioinformatics and Biomedicine (BIBM), [Conference]

IEEE International Conference on Robotics and Automation (ICRA), [Conference]

IEEE Robotics and Automation Letters (RA-L), [Journal]

IEEE Transactions on Automation Science and Engineering (TASE), [Journal]

IEEE Transactions on Robotics (TRO), [Journal]

IEEE Transactions on Robotics and Automation (TRA), [Journal]

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), [Conference]

International Journal of Robotics Research (IJRR), [Journal]

International Symposium on Robotics Research (ISRR), [Conference]

International Workshop on the Algorithmic Foundations of Robotics (WAFR), [Workshop]

Journal of Chemical Information and Modeling (JCIM), [Journal]

Robotics and Autonomous Systems, [Journal]

Robotics: Science and Systems Conference (RSS), [Conference]

Workshop on Machine Learning in Robot Motion Planning (MLMP), [Workshop]