

ADAKU UCHENDU

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EDUCATION

Pennsylvania State University Ph.D. in Information Sciences and Technology Thesis: <i>Reverse Turing Tests</i> Advisor: Dr. Dongwon Lee	<i>State College, Pennsylvania</i> <i>August 2018 - Present</i>
University of Maryland Baltimore County B.S. Mathematics Minor: Statistics, Honors: Cum Laude Thesis: <i>Numerical Simulation of Vibrations of Mechanical Structures</i> Advisor: Dr. Bedrich Sousedik	<i>Baltimore, Maryland</i> <i>August 2014 - May 2018</i>

RESEARCH INTERESTS

NLP, NLG, Cybersecurity, Adversarial Robustness, Machine Learning, Evolutionary & Genetic algorithms

ACADEMIC ACHIEVEMENTS AND AWARDS

McNair Scholar	<i>January 2016 - May 2018</i>
Undergraduate Research Award Scholar	<i>March 2017 - May 2018</i>
Pi Mu Epsilon Mathematics Honors Society	<i>May 2017 - May 2018</i>
Outstanding Tutor Award	<i>May 2018</i>
Bunton-Waller Graduate Fellowship	<i>August 2018 - May 2020</i>
Best Documentation at ATRC internship	<i>August 2019</i>
Best Poster Presentation at ATRC internship	<i>August 2019</i>
TTO Student Travel Scholarship	<i>October 2019</i>
CRA-W URMD Student Scholarship	<i>March 2020</i>
NSF SFS Scholarship	<i>August 2020 - May 2023</i>
ACM Richard Tapia Conference Student Scholarship	<i>September 2020, 2021</i>
Alfred P. Sloan Minority Ph.D. Scholarship	<i>January 2021 - Present</i>
CRA-WP Grad Cohort for Women	<i>April 2021</i>
WiCyS Student Scholarship	<i>September 2021, March 2022</i>

SKILLS

Programming: Python, R, Matlab, Java, \LaTeX , Maple
Tools: PyTorch, Tensorflow, Keras, Transformers
Applications: Git, Tableau, R Shiny
Operating Systems: Linux, Windows, MacOS

PUBLICATIONS

5. [AIKE'21] **Adaku Uchendu**, Daniel Campoy, Christopher Menart, Alexandra Hildenbrandt, "Robustness of Bayesian Neural Networks to White-Box Adversarial Attacks," *IEEE Fourth International Conference on Artificial Intelligence and Knowledge Engineering (AIKE)*. IEEE, 2021.
4. [EMNLP'21] **Adaku Uchendu**, Zeyu Ma, Thai Le, Rui Zhang, Dongwon Lee, "TURINGBENCH: A Benchmark Environment for Turing Test in the Age of Neural Text Generation," *Findings of the Association for Computational Linguistics: EMNLP 2021* (pp. 2001-2016), Punta Cana, Dominican Republic, November 2021

3. [EMNLP'20] **Adaku Uchendu**, Thai Le, Kai Shu, Dongwon Lee “Authorship Attribution for Neural Text Generation,” *In Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Virtual Event, November 2020
2. [TTO'19] **Adaku Uchendu**, Jeffrey Cao, Qiaozhi Wang, Bo Luo, Dongwon Lee. “Characterizing Man-made vs. Machine-made Chatbot Dialogs,” *In Conf. on Truth and Trust Online (TTO)*, London, UK, October 2019
1. [WebSci'19] Jialin Shao, **Adaku Uchendu**, Dongwon Lee. (2019). “A Reverse Turing Test for Detecting Machine-Made Texts,” *In 11th Int'l ACM Web Science Conf. (WebSci)*, Boston, MA, July 2019

INVITED TALKS

- *Reverse Turing Tests for Distinguishing AI-generated texts from Human-written texts*, at National Institute of Standards and Technology (NIST), **Applied and Computational Mathematics Division (ACMD)** Seminar Series, Virtual, May 25, 2021.

RESEARCH EXPERIENCE

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|--|---------------------------------------|
| PIKE Research Lab @ Penn State — <i>Research Assistant</i> | State College, Pennsylvania |
| <ul style="list-style-type: none"> • Research project: Reverse Turing Tests • Description: Building robust Machine/Deep learning models that can distinguish AI-generated texts from human-written ones. AI text-generators include GPT-2, GPT-3, GROVER PPLM, etc.. • Advisor: Dr. Dongwon Lee | <i>August 2018 - Present</i> |
| IBM Research — <i>Ph.D. Research Intern</i> | San Jose, California (Virtual) |
| <ul style="list-style-type: none"> • Research project: AutoML for NLP • Description: Worked on an Automated AI model for text classification. • Mentors: Dr. Sairam Gurajada & Dr. Alexandre Evfimievski | <i>May 2021 - August 2021</i> |
| ATRC, Air Force Research Laboratory — <i>Research Assistant Intern</i> | Dayton, Ohio (Virtual) |
| <ul style="list-style-type: none"> • Research project: Adversarial Robustness of Bayesian Neural Networks • Description: Implemented an adversarially robust Deep learning model by incorporating Bayesian Inference. • Mentors: Christopher Menart & Alexandra Hildenbrandt | <i>May 2020 - October 2020</i> |
| ATRC, Air Force Research Laboratory — <i>Research Assistant Intern</i> | Dayton, Ohio |
| <ul style="list-style-type: none"> • Research project: Reproducibility of the One-Pixel Attack • Description: Studied the characteristics of the one-pixel adversarial attack and its robustness. • Mentor: Alexandra Hildenbrandt | <i>May 2019 - August 2019</i> |
| Federal Reserve Board — <i>IT intern</i> | Washington, D.C. |
| <ul style="list-style-type: none"> • Research project: Islamic vs. Non-Islamic banks • Description: Investigated the Financial inclusion and growth of Islamic vs. Non-Islamic banks. • Mentor: Dr. Nida Davis | <i>May 2017 - August 2018</i> |
| University of Maryland Baltimore County — <i>Research Assistant</i> | Baltimore, Maryland |
| <ul style="list-style-type: none"> • Research project: Numerical Simulation of Mechanical Structures • Description: Researched the appropriate damping constant needed to reduce the oscillation of a simulated mechanical structure in MATLAB. | <i>February 2016 - May 2018</i> |

- Mentor: Dr. Bedrich Sousedik

WORK EXPERIENCES

Pennsylvania State University Graduate Assistantship

State College, Pennsylvania
January 2019 - May 2019

- Worked as a Teaching Assistant in a Security and Risk Analysis course.
- Assisted students on the use of Excel and R, graded and held office hours.

HACKATHONS UMD Bitcamp

Maryland
April 2017

- Built a chrome extension named, ProcrastinationStation with a team
- It re-routes its user to the Procrastination-Station website when Facebook is accessed.

HackUmbc

- Built an R Shiny dashboard named, Data Visualization.
- The dashboard takes in a csv file and plots a figure based on the selected column.

University of Maryland Baltimore County Math Lab Tutor

Baltimore, Maryland
September 2015 - May 2018

- Tutored the following courses: College Algebra, Pre-calculus, Calculus I, Calculus II, Calculus III, Linear Algebra, and Differential Equations.

Math Learning Assistant (LA)

August 2016 - December 2016

- Assisted students in Pre-Calculus.
- Held weekly discussion sessions and Office hours.
- Presented the students with a weekly individual quiz and graded it.

PROFESSIONAL SERVICES

Journal Reviewer

- Social Network Analysis and Mining (SNAM) *2021*
- Language Resources and Evaluation (LREV) *2021*
- Journal of Artificial Intelligence (AIJ) *2021*

MENTORING EXPERIENCE

- UMBC Reach Initiative (September 2017 - May 2018)
 - Provided STEM exposure and professional development for Baltimore high school girls
- UMBC Summer 2021 McNair students (through *2021 McNair Alumni Mentor*)

PRESS COVERAGE

“Is AI the Future of Content Generation?,” **Bloggers Insights**, August 2021.
 “Five top technology trends from 2021 that are here to stay,” **Ericsson Blog**, June 2021.
 “Finance’s Embrace Of AI-Generated Writing,” **Robot Writers AI**, March 2021.
 “Researchers test detection methods for AI-generated content,” **Penn State News**, February 2021.
 “Siblings pursue parallel doctoral degrees,” **Penn State News**, August 2020.
 “Adaku Uchendu to extend passion for mathematics through information sciences Ph.D. at Penn State,” **UMBC News**, April 2018.