ADAKU UCHENDU

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EDUCATION

Pennsylvania State University — *State College, Pennsylvania*
Ph.D. in Information Sciences and Technology — *August 2018 - Present*
Thesis: *Reverse Turing Tests*
Advisor: Dr. Dongwon Lee

University of Maryland Baltimore County — *Baltimore, Maryland*
B.S. Mathematics | Minor: Statistics, **Honors**: Cum Laude — *August 2014 - May 2018*
Thesis: *Numerical Simulation of Vibrations of Mechanical Structures*
Advisor: Dr. Bedrich Sousedik

RESEARCH INTERESTS

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

ACADEMIC ACHIEVEMENTS AND AWARDS

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

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," *fourth IEEE 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," *In Proceedings of the Findings of the 2021 Empirical Methods in Natural Language Processing (EMNLP)*, 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

PIKE Research Lab @ Penn State — *Research Assistant* **State College, Pennsylvania**

- **Research project:** Reverse Turing Tests *August 2018 - Present*
- **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

IBM Research — *Ph.D. Research Intern* **San Jose, California (Virtual)**

- **Research project:** AutoML for NLP *May 2021 - August 2021*
- **Description:** Worked on an Automated AI model for text classification.
- Mentors: Dr. Sairam Gurajada & Dr. Alexandre Evfimievski

ATRC, Air Force Research Laboratory — *Research Assistant Intern* **Dayton, Ohio (Virtual)**

- **Research project:** Adversarial Robustness of Bayesian Neural Networks *May 2020 - October 2020*
- **Description:** Implemented an adversarially robust Deep learning model by incorporating Bayesian Inference.
- Mentors: Christopher Menart & Alexandra Hildenbrandt

ATRC, Air Force Research Laboratory — *Research Assistant Intern* **Dayton, Ohio**

- **Research project:** Reproducibility of the One-Pixel Attack *May 2019 - August 2019*
- **Description:** Studied the characteristics of the one-pixel adversarial attack and its robustness.
- Mentor: Alexandra Hildenbrandt

Federal Reserve Board — *IT intern* **Washington, D.C.**

- **Research project:** Islamic vs. Non-Islamic banks *May 2017 - August 2018*
- **Description:** Investigated the Financial inclusion and growth of Islamic vs. Non-Islamic banks.
- Mentor: Dr. Nida Davis

University of Maryland Baltimore County — *Research Assistant* **Baltimore, Maryland**

- **Research project:** Numerical Simulation of Mechanical Structures *February 2016 - May 2018*
- **Description:** Researched the appropriate damping constant needed to reduce the oscillation of a simulated mechanical structure in MATLAB.

- Mentor: Dr. Bedrich Sousedik

WORK EXPERIENCES

Pennsylvania State University **State College, Pennsylvania**
Graduate Assistantship *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 **Maryland**
UMD Bitcamp *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 **Baltimore, Maryland**
Math Lab Tutor *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*

PRESS COVERAGE

"Five top technology trends from 2021 that are here to stay," **Ericsson Blog**, June 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.