ADAKU UCHENDU

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EMPLOYMENT

MIT Lincoln Laboratory *Lexington, MA*
Technical staff (AI Researcher) *October 2023 - Present*

EDUCATION

Pennsylvania State University *University Park, Pennsylvania*
Ph.D. in Information Sciences and Technology *August 2018 - August 2023*
Thesis: *Reverse Turing Test in the Age of Deepfake Texts*
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

SKILLS

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

RESEARCH INTERESTS

NLP, LLMs, Cyber Security, Adversarial Robustness, Machine Learning, Topological Data Analysis

ACHIEVEMENTS, HONORS, AND AWARDS

Post-Graduate

EWM-EMS Summer School: Stability in Topological Data Analysis @ Sweden	*July 2025*
Associates Leadership Development Program with The Partnership Inc.	*February-December 2025*
Dagstuhl Seminar - Fair Division @ Germany	*October 2024*
11th Heidelberg Laureate Forum (HLF) @ Germany	*September 2024*

Graduate

Alfred P. Sloan Minority Ph.D. Scholarship (**$40,000**)	*January 2021 - August 2023*
NSF SFS Scholarship (**$34,000 annually**)	*August 2020 - May 2023*
Bunton-Waller Graduate Fellowship	*August 2018 - May 2023*
Diversity & Inclusion ICML 2022 & BlackinAI conference scholarship	*July 2022*
Diversity & Inclusion ACL 2022 conference Student Scholarship	*May 2022*
WiCyS Student Scholarship	*September 2021, March 2022*
CRA-WP Grad Cohort for Women	*April 2021, 2022*
ACM Richard Tapia Conference Student Scholarship	*September 2020, 2021, 2022*
CRA-WP URMD/IDEALS Student Scholarship	*March 2020, 2022*
TTO Student Travel Scholarship (£**1250**)	*October 2019*
Best Poster Presentation at ATRC internship	*August 2019*
Best Documentation at ATRC internship	*August 2019*

Outstanding Tutor Award	*May 2018*
Pi Mu Epsilon Mathematics Honors Society	*May 2017 - May 2018*
Undergraduate Research Award Scholar (**$1500**)	*March 2017 - May 2018*
McNair Scholar	*January 2016 - May 2018*

PREPRINTS

2. [**arXiv'25**] William Guo, Ana Smith, **Adaku Uchendu**, "Signature vs. Substance: Evaluating the Balance of Adversarial Resistance and Linguistic Quality in Watermarking Large Language Models," *ArXiv Preprint*, On-hold 2025 (*Under Review*)

1. [**arXiv'24**] **Adaku Uchendu**, Thai Le, "Unveiling Topological Structures from Language: A Comprehensive Survey of Topological Data Analysis Applications in NLP," *ArXiv Preprint*, November 2024 (*Under Review*)

PUBLICATIONS

* means equal contribution

19. [**IEEE-CS'26**] Dominik Macko, Aashish Anantha Ramakrishnan, Jason Samuel Lucas, Robert Moro, Ivan Srba, **Adaku Uchendu**, Dongwon Lee "Beyond speculation: Measuring the growing presence of LLM-generated texts in multilingual disinformation," *IEEE Computer Science Magazine*, July 2025

18. [**NAACL-W'25**] Kenneth Alperin, Rohan Leekha, **Adaku Uchendu**, Trang Nguyen, Srilakshmi Medarametla, Carlos Levya Capote, Seth Aycock, Charlie K. Dagli, "Masks and Mimicry: Strategic Obfuscation and Impersonation Attacks on Authorship Verification," *The 5th International Conference on Natural Language Processing for Digital Humanities (NLP4DH) at NAACL 2025 Workshop*, May 2025

17. [**NAACL'25**] Ekaterina Artemova, Jason Lucas, Saranya Venkatraman, Jooyoung Lee, Sergei Tilga, **Adaku Uchendu**, Vladislav Mikhailov, "Beemo: Benchmark of Expert-edited Machine-generated Outputs," *NAACL 2025*, Albuquerque, New Mexico, April 2025

16. [**NAACL'25**] Jooyoung Lee, Toshini Agrawal, **Adaku Uchendu**, Thai Le, Jinghui Chen, Dongwon Lee, "*PlagBench*: Exploring the Duality of Large Language Models in Plagiarism Generation and Detection," *NAACL 2025*, Albuquerque, New Mexico, April 2025

15. [**EMNLP'24**] Dominik Macko, Robert Moro, **Adaku Uchendu**, Ivan Srba, Jason Lucas, Michiharu Yamashita, Nafis Irtiza Tripto, Dongwon Lee, Jakub Simko, Maria Bielikova "Authorship Obfuscation in Multilingual Machine-Generated Text Detection," *EMNLP-Findings 2024*, Miami, FL, November 2024

14. [**ECAI'24**] **Adaku Uchendu**, Thai Le, Dongwon Lee, "TOPFORMER: Topology-Aware Authorship Attribution of Deepfake Texts with Diverse Writing Styles," *ECAI (European Conference on Artificial Intelligence) 2024*, Santiago de Compostela, Spain, October 2024

13. [**ACL'24**] Nafis Irtiza Tripto, Saranya Venkatraman, Dominik Macko, Robert Moro, Ivan Srba, **Adaku Uchendu**, Thai Le, Dongwon Lee, "A Ship of Theseus: Curious Cases of Paraphrasing in LLM-Generated Texts," *ACL 2024*, Bangkok, Thailand, August 2024

12. [**NAACL'24**] Saranya Venkatraman, **Adaku Uchendu**, Dongwon Lee, "GPT-who: An Information Density-based Machine-Generated Text Detector," *NAACL-Findings 2024*, Mexico, June 2024

11. [**EMNLP'23**] Dominik Macko, Robert Moro, **Adaku Uchendu**, Jason Lucas, Michiharu Yamashita, Matúš Pikuliak, Ivan Srba, Thai Le, Dongwon Lee, Jakub Simko, Maria Bielikova, "MULTITuDE: Large-Scale Multilingual Machine-Generated Text Detection Benchmark," *EMNLP 2023*, Singapore, December 2023

10. [**EMNLP'23**] Nafis Irtiza Tripto, **Adaku Uchendu**, Thai Le, Mattia Setzu, Fosca Giannotti, Dongwon Lee, "HANSEN: Human and AI Spoken Text Benchmark for Authorship Analysis," *EMNLP-Findings 2023*, Singapore, December 2023

9. [**EMNLP'23**] Jason Lucas, **Adaku Uchendu**, Michiharu Yamashita, Jooyoung Lee, Shaurya Rohatgi, Dongwon Lee, "Fighting Fire with Fire: The Dual Role of LLMs in Crafting and Detecting Elusive Disinformation," *EMNLP 2023*, Singapore, December 2023

8. [**HCOMP'23**] **Adaku Uchendu***, Jooyoung Lee*, Hua Shen*, Thai Le, Kenneth Huang, Dongwon Lee, "Does Human Collaboration Enhance the Accuracy of Identifying LLM-generated Deepfake Texts?," *11th AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, Delft, Netherlands, November 2023

7. [**KDD Exp'23**] **Adaku Uchendu**, Thai Le, Dongwon Lee, "Attribution and Obfuscation of Neural Text Authorship: A Data Mining Perspective," *ACM SIGKDD Explorations Newsletter*, Vol. 25(1), June 2023

6. [**Web Conf'23**] Fionda, V., et al., "Tutorials at The Web Conference 2023," In Companion Proceedings of the *ACM Web Conference* 2023 (pp. 648-658), Austin, Texas, April 2023

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, December 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 Conference 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 International ACM Web Science Conference (WebSci)*, Boston, MA, July 2019

TUTORIALS

4. [**NAACL'24**] **Adaku Uchendu**, Saranya Venkatraman, Thai Le, Dongwon Lee, "Catch Me If You GPT: Tutorial on Deepfake Texts," *2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics*, Mexico City, Mexico, June 2024

3. [**NSF Summit'23**] **Adaku Uchendu**, Thai Le, Dongwon Lee, "Catch Me If You GPT: Tutorial on Deepfake Texts," *2023 NSF Cybersecurity Summit for Large Facilities and Cyberinfrastructure* at **Lawrence Berkeley National Laboratory**, Berkley, California, October 2023 (*Training/Workshop*)

2. [**Web Conf'23**] **Adaku Uchendu**, Thai Le, Dongwon Lee, "Catch Me If You GAN: Generation, Detection, and Obfuscation of Deepfake Texts," *ACM Web Conference (WWW)*, Austin, Texas, April 2023

1. [**INLG'22**] **Adaku Uchendu**, Vladislav Mikhailov, Jooyoung Lee, Saranya Venkatraman, Tatiana Shavrina, Ekaterina Artemova. "Tutorial on Artificial Text Detection," *The 15th International Conference on Natural Language Generation (INLG): Tutorial*, Maine, July 2022

THESES

2. **Adaku Uchendu**. (2023). Reverse Turing Test in the Age of Deepfake Texts. Ph.D. Dissertation, College of Information Sciences and Technology, Pennsylvania State University, PA, USA. 2023.

1. **Adaku Uchendu**. (2017). Numerical Simulation of Vibrations of Mechanical Structures. Senior Thesis, Department of Mathematics and Statistics, University of Maryland Baltimore County (UMBC), MD, USA. 2018. [slides]

INVITED TALKS, PANELS, AND POSTERS

1. [**TALK**] *Unveiling Topological Structures from Language: A Comprehensive Survey of Topological Data Analysis Applications in NLP*, at the 2025 Sloan Scholars Mentoring Network (SSMN) **Research Symposium**, Atlanta, Georgia, October 29-30, 2025.

2. [**PANEL**] Served on a panel for MIT Lincoln Lab's Early Career ERG (Employee Resource Group) *Early Career*, Lexington, MA, August 26, 2025

3. [**POSTER**] *Unveiling Topological Structures from Language: A Comprehensive Survey of TDA Applications in NLP*, at The Geometric Realization of AATRN (Applied Algebraic Topology Research Network), **Poster**, Chicago, Illinois, August 19, 2025.

4. [**TALK**] *Unveiling Topological Structures in Text & Speech*, at the 39th Summer Topology and Its Applications Conference, **Topology and Computing special session**, Mobile, Alabama, August 12, 2025.

5. [**PANEL**] Served on a virtual panel for UMBC McNair's *Let's Talk Grad School (LTGS) #3: Careers After Graduate School*, Virtual, March 8, 2025

6. [**TALK**] *Authorship Obfuscation in the Age of Large Language Models*, at MIT Lincoln Lab's Black Experience ERG, **Black History Month series**, Lexington, MA, February 4, 2025.

7. [**PANEL**] Invited to serve on a virtual panel of professionals to speak to USM LSAMP Summer Research Fellows about career pathways. Virtual, July 22, 2024.

8. [**TALK**] *Attribution and Obfuscation of Deepfake Text Authorship*, at Cohere for AI (Geo Regional Africa Group), **Research Guest Speaker**, Virtual, May 14, 2024. [Video]

9. [**TALK**] *Attribution and Obfuscation of Deepfake Texts*, at St. George's University, Grenada, **Invited Lecture**, Virtual, February 15, 2024.

10. [**TALK**] *Detection and Obfuscation of Deepfake Texts*, at MIT Lincoln Laboratory's fourth Recent Advances in Artificial Intelligence for National Security (RAAINS) workshop, **Student Lightning talk**, Lexington, MA, November 16, 2022.

11. [**TALK**] *Attribution and Obfuscation of Neural Text Authorship*, at Dublin City University, Ireland, **NLP Seminar**, Virtual, October 10, 2022

12. [**POSTER**] *TuringBench*, at Pan-APA 5th Annual Conference at The Pennsylvania State University, University Park, PA, April 9, 2022.

13. [**TALK**] *Reverse Turing Test in the Age of Neural Text Generation*, at the National Institute of Standards and Technology (NIST), Information Technology Laboratory, **Software and Systems Division**, Virtual, February 10, 2022.

14. [**TALK**] *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. [Online post]

RESEARCH EXPERIENCE

Artificial Intelligence & Systems Group @ MIT Lincoln Lab — *Technical Staff (AI Researcher)*
Lexington, Massachusetts *October 2023 - Present*

- **NLP Research**
  - Evaluated an Authorship Verification system under Authorship Obfuscation constraints - *Published at a workshop @ NAACL 2025*
  - Evaluated the different deepfake texts detection techniques: watermarking vs. automatic detection
  - Mentored a high school student (from IMSA) on watermarking for LLMs - *Paper under review*
- **TDA + NLP Research**
  - Surveyed the new and niche area of using Topological Data Analysis (TDA) to solve NLP tasks - *Paper under review*
  - Currently exploring using TDA to interpret and optimize LLMs
  - Currently mentoring Undergraduate students (from Harvey Mudd College) on using TDA to improve the transparency of LLMs

PIKE Research Lab @ Penn State — *Research Assistant*   **University Park, Pennsylvania**

- **Research project:** Reverse Turing Tests   *August 2018 - August 2023*
- **Description:** Built automatic and human-based approaches to accurately distinguish deepfake (LLM-generated) texts from human-written ones. Deepfake text generators include GPT-3, PPLM, LLaMA, Flan-T5, etc..
- Advisor: Dr. Dongwon Lee

Pacific Northwest National Lab — *NSIP Ph.D. Intern*   **Richland, Washington (Virtual)**

- **Research project:** Analysis of Cybersecurity contract documents   *May 2022 - August 2022*
- **Description:** Used NLP techniques to assess the coverage of cybersecurity contract-like vocabulary in the documents.
- Mentor: Dr. David McKinnon

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

TEACHING EXPERIENCES

Pennsylvania State University **State College, Pennsylvania**
Teaching Assistant *January 2019 - May 2019*

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

REU Lab Tutor *May & June 2021*

- Designed and instructed the lab on LaTeX, Overleaf, and AI text-generation

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 and graded the students with a weekly individual quiz.

PROFESSIONAL & ACADEMIC SERVICES

- **Senior Area Chair**
  - EMNLP 2025
  - ACL ARR May 2025
- **Area Chair**
  - 2025 Feb. ACL RR (for ACL 2025)
  - DSAA 2025
- **Program Committee Member**
  - The First Workshop on Efficient Benchmarking in NLP (NLP Power) at ACL 2022
  - ECAI 2024 conference
  - Workshop on *Detecting AI Generated Content* @ COLING 2025
  - NAACL-HLT/ACL/EMNLP Tutorials 2025
  - ECAI 2025 conference
  - RANLP 2025 conference
- **Conference Reviewer**
  - 2024, 2025 ACL Rolling Review
  - 2024, 2025 ACM Richard Tapia conference
- **Session Chair**
  - *Crowd Modeling and Optimization* Session at AAAI HCOMP 2023
- **Journal Reviewer**
  - Social Network Analysis and Mining (SNAM)
  - Language Resources and Evaluation (LREV)
  - Journal of Artificial Intelligence (AIJ)
  - Nature Human Behaviour

- **Organizing Committee**
  - The 2023 6th Annual Pan-APA conference @ Penn State
- **Executive Staff for Organizations**
  - 2019-2020 Graduate Student Association in IST, Penn State (Treasurer)
  - 2022-2023 Penn State Pan-African Professional Alliance (IT Officer)

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*) - 2021
- Nafis Irtiza Tripto (junior Ph.D. student @ PIKE lab) on *Authorship Attribution & Verification* - 2022-2023
- Bruce Taylor (M.S. student @ Tuskegee University) on *Human Authorship Attribution* - 2022-2023
- Jason Lucas (Ph.D. student @ PIKE lab) on *Multilingual Fake News detection* - 2022-Present
- William Guo (High school student @ Illinois Mathematics and Science Academy) on *Watermarking LLMs* - 2024-2025
- Five students (Undergraduate students @ Harvey Mudd College (Research clinic)) on *Using Topology to Interpret and Characterize Neural Networks* - 2025-2026

PRESS COVERAGE

- "Telling AI from Human: DeepFake Texts in the era of Large Language Models. Tutorial Notes @NAACL 2024," **Jinghong Chen's Blog Post**, June 2024
- "Where are they now?," **UMBC's Department of Mathematics and Statistics**, 2023.
- "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.