

# ADAKU UCHENDU

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## EMPLOYMENT

### MIT Lincoln Laboratory

Technical staff (AI Engineer/Researcher)

*Lexington, MA*

*October 2023 - Present*

## EDUCATION

### Pennsylvania State University

Ph.D. in Information Sciences and Technology

**Thesis:** *Reverse Turing Test in the Age of Deepfake Texts*

**Advisor:** Dr. Dongwon Lee

*University Park, Pennsylvania*

*August 2018 - August 2023*

### University of Maryland Baltimore County

B.S. Mathematics | Minor: Statistics, **Honors:** Cum Laude

**Thesis:** *Numerical Simulation of Vibrations of Mechanical Structures*

**Advisor:** Dr. Bedrich Sousedik

*Baltimore, Maryland*

*August 2014 - May 2018*

## SKILLS

**Programming:** Python, R, Matlab, Java, L<sup>A</sup>T<sub>E</sub>X, 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

**Rising Star Award** @ ICDM 2025 Undergraduate and High School Symposium

*November 2025*

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*

## Undergraduate

Outstanding Tutor Award  
Pi Mu Epsilon Mathematics Honors Society  
Undergraduate Research Award Scholar (**\$1500**)  
McNair Scholar

May 2018  
May 2017 - May 2018  
March 2017 - May 2018  
January 2016 - May 2018

## PREPRINTS

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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

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\* means equal contribution

20. [ICDM-W'25] William Guo, Ana Smith, **Adaku Uchendu**, “[Signature vs. Substance: Evaluating the Balance of Adversarial Resistance and Linguistic Quality in Watermarking Large Language Models](#),” *IEEE ICDM 2025 Undergraduate and High School Symposium (UGHS)*, November 2025 [**Rising Star Award**]
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

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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

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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

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1. [[TALK](#)] *Possibilities and Pitfalls of AI: Career and Research Talk*, at MIT Introduction to Technology, Engineering, and Science (MITES)'s **Saturdays Fall Symposium**, Boston, Massachusetts, November 22, 2025.
2. [[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.
3. [[PANEL](#)] Served on a panel for MIT Lincoln Lab's Early Career ERG (Employee Resource Group) *Early Career*, Lexington, MA, August 26, 2025
4. [[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.
5. [[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.
6. [[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
7. [[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.
8. [[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.
9. [[TALK](#)] *Attribution and Obfuscation of Deepfake Text Authorship*, at Cohere for AI (Geo Regional Africa Group), **Research Guest Speaker**, Virtual, May 14, 2024. [[Video](#)]
10. [[TALK](#)] *Attribution and Obfuscation of Deepfake Texts*, at St. George's University, Grenada, **Invited Lecture**, Virtual, February 15, 2024.
11. [[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.
12. [[TALK](#)] *Attribution and Obfuscation of Neural Text Authorship*, at Dublin City University, Ireland, **NLP Seminar**, Virtual, October 10, 2022
13. [[POSTER](#)] *TuringBench*, at Pan-APA 5th Annual Conference at The Pennsylvania State University, University Park, PA, April 9, 2022.
14. [[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.

15. [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

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**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 - *Published at a symposium @ ICDM 2025*
- **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
- **Description:** Investigated the Financial inclusion and growth of Islamic vs. Non-Islamic banks.
- Mentor: Dr. Nida Davis

*May 2017 - August 2018*

University of Maryland Baltimore County — *Research Assistant*

Baltimore, Maryland

- **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.
- Mentor: Dr. Bedrich Sousedik

*February 2016 - May 2018*

## TEACHING EXPERIENCES

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Pennsylvania State University  
Teaching Assistant

State College, Pennsylvania  
*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  
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 and graded the students with a weekly individual quiz.

## PROFESSIONAL & ACADEMIC SERVICES

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- **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

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- 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 (Ph.D. student @ Penn State's 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 @ Penn State's 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

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- [“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.