



Jason S. Lucas

PH.D STUDENT · DATA & AI, HEALTH, & PUBLIC HEALTH INFORMATICS SPECIALIST

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"Using artificial intelligence to solve leading cybersecurity, health, and language inclusion problems, I embody the expanding human concept that drives the greatest 21st-century innovations."

Summary

With over a decade of expertise in Information Technology and Medical Education, I excel in bridging cutting-edge research with practical applications. At Penn State's PIKE Research Lab and LinDiv NRT fellowship, my role as a Research Assistant leverages my interdisciplinary and transdisciplinary skills in Linguistics, Data Sciences, Artificial Intelligence, Public Health, and Health Informatics. I specialize in developing advanced AI solutions focused on model adaptation, adversarial robustness, language understanding, generation, and inclusivity, particularly in multilingual settings with limited resources. I aim to address the digital language divide by innovating in AI, cybersecurity, and public health, offering tangible solutions for today's global challenges.

Education

Ph.D. in Informatics (Data Science and AI)

PENNSYLVANIA STATE UNIVERSITY

- Topic: Low-Resource Multilingual NLP for Combating Dis/Misinformation
- Advisor: Dr. Dongwon Lee

University Park, PA

Aug. 2021 - Present

MPH (Epidemiology)

ST. GEORGE'S UNIVERSITY

- Capstone: Effects of Self-Care Apps in Prediabetics in Grenada
- Advisor: Dr. Emanuel Keku

St. George's, GD

Jan. 2018 - Aug. 2020

M.Sc. in Computer Information Systems (Health Informatics)

BOSTON UNIVERSITY

Boston, MA

Jan. 2012 - Sep. 2014

B.Sc. in Information Technology, cum laude

ST. GEORGE'S UNIVERSITY

- Information Systems Project: Azure Medical Web-based Application
- Advisor: Dr. Michael Roberts

St. George's, GD

Jan. 2007 - May 2010

A.S. in Information Technology

T.A. MARRYSHOW COMMUNITY COLLEGE

St. George's, GD

Aug. 2005 - Jul. 2007

Graduate Certificate (NSF NRT Linguistic Diversity Across the Lifespan (LINDIV))

PENNSYLVANIA STATE UNIVERSITY

University Park, PA

Aug. 2022 - Aug. 2024

Publications

[ACL'22] Jason Lucas, Limeng Cui, Thai Le, and Dongwon Lee. 2022. **Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands.** In Proceedings of the Workshop on Combating Online Hostile Posts in Regional Languages during Emergency Situations, pages 95–102, Dublin, Ireland. Association for Computational Linguistics (ACL).

[EMNLP '23] Jason Lucas, Adaku Uchendu, Michiharu Yamashita, Jooyoung Lee, Shaurya Rohatgi, and Dongwon Lee. 2023. **Fighting Fire with Fire: The Dual Role of LLMs in Crafting and Detecting Elusive Disinformation.** Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP). Singapore. Association for Computational Linguistics.

[EMNLP '23] Dominik Macko, Robert Moro, Adaku Uchendu, Jason Samuel Lucas, Michiharu Yamashita, Matúš Pikuliak, Ivan Srba, Thai Le, Dongwon Lee, Jakub Simko, and Maria Bielikova. 2023. **MULTITuDE: Large-Scale Multilingual Machine-Generated Text Detection Benchmark** Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP). Singapore. Association for Computational Linguistics.

[Pre-print] Dominik Macko, Robert Moro, Adaku Uchendu, Ivan Srba, Jason Samuel Lucas, Michiharu Yamashita, Nafis Irtiza Tripto, Dongwon Lee, Jakub Simko, Maria Bielikova (2024). **Authorship Obfuscation in Multilingual Machine-Generated Text Detection.** arXiv preprint arXiv:2401.07867.

[In Progress] Jason Lucas GREENLAND: multilingual encoder-decoder transfer Learning for multi and cross-lingual dis/misinformation Detection

[In Progress] Jason Lucas X-GEN: Towards Cross-lingual Generalizable (X-Gen) Automatic Fake News Detection

[In progress] Jason Lucas F3 2.0: Towards Multilingual Personalized Disinformation Attack and Detection

Academic Achievements & Awards

FELLOWSHIPS & SCHOLARSHIPS

2024	CRA-WP IDEALS , Computer Research Association Grad Cohort for IDEAL Student Scholarship	Honolulu, HI
2023	NSF Research Traineeship , 2023 NSF NRT Research Research Traineeship Student Scholarship	Tempe, AZ
2023	CRA-WP IDEALS , Computer Research Association Grad Cohort for IDEAL Student Scholarship	Honolulu, HI
2022	NSF LINDIV , Linguistic Diversity Across the Lifespan Graduate Fellowship	University Park, PA
2022	ICLM & Black in AI , International Conference on Machine Learning Diversity & Inclusion Student Scholarship	Baltimore, MD
2022	ACL , Association for Computational Linguistics Diversity & Inclusion Student Scholarship	Dublin, IRL
2021	PSU FEGR , Penn State University Funds for Excellence in Graduate Recruitment Fellowship	University Park, PA
2018	SGU Graduate Fellowship , St. George's University Graduate Fellowship	St. George's, GD
2007	SGU Student Scholarship , St. George's University Undergraduate Student Scholarship	St. George's, GD

AWARDS

2018	MPH , Chancellor's List for Academic Excellence	St. George's, GD
2012	Job Award , Excellence and Dedication to Objective Structured Clinical Examination	St. George's, GD
2013	B.Sc. , Dean's List for Academic Excellence	St. George's, GD
2013	B.Sc. , Chancellor's List for Academic Excellence	St. George's, GD

Presentations and Invited Talks

St. George's University, Department of Computers and Technology

St. George's, Grenada

INVITED TALK AND PANELIST ON <FORUM ON OPPORTUNITIES IN EMERGING TECHNOLOGY>

Jan. 2024

- Expose students to emerging technologies currently being used or explored across different fields.
- Discuss the applications and implications of some of these technologies.

EMNLP 2023, Conference on Empirical Methods in Natural Language Processing

Sentosa, Singapore

MAIN CONFERENCE PROCEEDINGS PRESENTATION FOR <2023 EMPIRICAL METHODS IN NATURAL LANGUAGE PROCESSING>

Dec. 2023

- Presented the Paper: Fighting Fire with Fire: The Dual Role of LLMs in Crafting and Detecting Elusive Disinformation.
- Discussed the dual capacity of LLMs for offensive misuse and defensive detection of disinformation.

St. George's University, Department of Computers and Technology

St. George's, Grenada

INVITED TALK ON <ARTIFICIAL INTELLIGENCE AND LATEST AI RESEARCH>

Nov. 2023

- Presented on the history of AI to present and latest in AI research
- Discussed my latest research, Fighting Fire with Fire, highlighting the dual capacity of LLMs for disinformation misuse and detection.

National Science Foundation Annual Meeting 2023

Tempe, AZ

POSTER PRESENTATION FOR < NATIONAL SCIENCE FOUNDATION RESEARCH TRAINEESHIP>

Oct. 2023

- Delivered a poster presentation on integrating linguistic, psychological, and AI approaches for native accent variant processing on human language technology

National AI Institute for Exceptional Education

University Park, PA

INVITED TALK FOR < NATIONAL SCIENCE FOUNDATION AND THE INSTITUTE OF EDUCATION SCIENCES AI RESEARCH INSTITUTES>

Sep. 2023

- Delivered a talk on AI Transforming Education for Children with Speech and Language Pathologies

Pan-APA 6th Annual Conference

University Park, PA

CONFERENCE PRESENTATION FOR <BUILDING A RESILIENT FUTURE FOR AFRICA IN THE POST COVID WORLDE>

Apr. 2023

- Introduced the first case study on detecting false claims in the Caribbean islands, a low-resource language region.
- Discuss the challenges and future research directions for combating multilingual long-tail fake news.

Computing Research Association Grad Cohort Workshop for IDEALS Skills

Honolulu, HI

LIGHTENING TALK FOR <2023 GRAD COHORT FOR IDEALS LIGHTNING TALK>

Mar. 2023

- Delivered a lightning talk on Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands

ACL 2022, 60th Annual Meeting of the Association for Computational Linguistics

Dublin, IRL

WORKSHOP PRESENTATION <COMBATING ONLINE HOSTILE POSTS IN REGIONAL LANGUAGES DURING EMERGENCY SITUATION>

May. 2022

- Presented the Paper: Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands
- Discussed future work on low-resource language processing to Combat COVID-19 Related Online Hostile Content

Research Experience

PIKE Research Lab.

GRADUATE RESEARCH ASSISTANT

- **Research Project:** SysFake, SocialGPT, FCFC
- **Description:** I lead research projects and collaborate with internal and international researchers. My research encompasses NLG, NLU, LLM, Transfer Learning, Adversarial ML, DL, and Data Scrapping.
- Advisor: Dongwon Lee
- Projects: : C-Transfer, F3, X-GEN, GREENLAND

Penn State University

Aug. 2021 - Present

Teaching Experience

IST 140: Introduction to Application Development

GRADUATE TEACHING ASSISTANT

- Teaching assistant for an introductory course in programming principles using Java
- Assisted students in using IntelliJ and understanding programming concepts
- Graded assignments/exams and held office hours for student support

Penn State University

Aug. 2021 - Dec.

IST 210: Organization of Data

GRADUATE TEACHING ASSISTANT

- Teaching assistant for database course teaching fundamental concepts
- Assisted students in using Microsoft SQL, conceptualizing concepts, and practical skills
- Graded assignments/exams and held office hours for student support

Penn State University

Aug. 2021 - Dec.

BPM II: Basic Principles of Medicine

INSTRUCTOR

- Served as a lecturer for Introduction Biomedical Informatics
- Developed exam questions and conducted office hours for student support

St. George's University

Jan. 2021 - Jun.2021

PUBH 302: Public Health

INSTRUCTOR

- Served as a lecturer for Introduction to Health Informatics
- Developed exam questions and conducted office hours for student support

St. George's University

Aug. 2020 - Jun.2021

COMP 420: Database Systems

ADJUNCT ASSISTANT PROFESSOR

- Served as a lecture for an advanced database system course
- Developed exam questions and course material
- Lectured and conducted practical labs sessions
- Graded assignments/exams and provided feedback
- Conducted office hours for student support

St. George's University

Aug. 2010 - Dec. 2011

Information Technology

CERTIFIED TEACHER I

- Taught Information Technology at The Anglican High School
- Developed exam questions and class materials
- Managed IT lab and conducted practical labs sessions
- Graded assignments/exams and provided feedback
- Take students' attendance and manage a class cohort

Ministry of Education, Gov. Grenada

Aug. 2010 - Jul. 2011

COMP 420: Database Systems

FACILITATOR

- Undergrad tutoring and small group facilitation

St. George's University

Aug. 2009 - May 2010

Professional Experience

Penn State University

GRADUATE RESEARCH/TEACHING ASSISTANT. ASSISTANTSHIP

- Develop novel research directions and lead projects.
- Assist with course management and teaching responsibilities.
- Develop novel NLP and machine learning approaches.
- Collaborate with national and international research leaders/institutions.
- Mentor research interns.

Pennsylvania, PA

Aug. 2021 - Current

Coalfire

CYBERSECURITY CONSULTANT . INTERNSHIP

- Learn PCI SSC reporting essentials
- Participate in client-facing security assessments.
- Document PCI DSS compliance findings
- Collaborate on PCI process improvements.
- Project: Use Wireshark & DevTools for data encryption checks.

Greenwood, CO

May. 2023 - August. 2023

St. George's University

INSTRUCTOR/DEMONSTRATOR/ADJUNCT PROFESSOR. FACULTY

- Headed B-line division and managed teams across the Clinical Skills Department
- Administered B-Line SimCapture platform across the School of Medicine
- Developed training material and trained users across clinical medicine education
- Mentored colleagues and interns
- Taught undergraduate and graduate-level courses in IT, Medicine, and Public Health

St. George's, GD

Dec. 2011 - July. 2021

LIME (Cable & Wireless Communications)

IT INTERN . INTERNSHIP

- Assist with troubleshooting and resolving IT issues
- Support software and hardware installations
- Document IT processes and incident reports
- Collaborate with the IT team on projects and tasks

Greenwood, CO

May. 2023 - August. 2023

Service and Leadership

Empirical Methods in Natural Language Processing

EMNLP'23 CONFERENCE VOLUNTEER

- Provide technical support for the main conference
- Poster presentations support and coordination
- Participant registration and check-in

University Park, PA

Aug. 2023 - PRESENT

Penn State Pan-African Professional Alliance

IT OFFICER

- Set IT goals and lead initiatives
- Manage organization website
- Direct IT operations for organization's events and activities
- Support organization's president and executive members

University Park, PA

Aug. 2023 - PRESENT

Graduate Student Association in Information Sciences & Technology

PRESIDENT

- Led an executive team of 3 members and 170+ graduate students at Penn State
- Revised organization's mission and vision towards strategic change
- Conducted mass mixed-method student survey to assess needs, gaps, and college climate
- Analyze data using thematic analysis and descriptive statistics, and generate students' feedback report
- Advocated for students by presenting findings to the college deans, program directors, and administrative staff

University Park, PA

Nov. 2022 - Aug. 2023

NSF LINDIV Graduate Research Training Program

OUTREACH COORDINATOR

- Coordinated outreach for the NSF LINDIV Graduate research training program 2022
- Led a team of 7 to execute a STEM career day workshop, ENVISION, supporting young women

University Park, PA

Aug. 2022 - Jan. 2023

Grenada Red Cross

IT OFFICER

- Led information technology initiatives
- Mentor and supervise interns
- Oversee web development
- Support the president

St. George's, GD

Jul. 2020 - Jun. 2021

Fit For Life: Youth Development Program

DIRECTOR AND CO-FOUNDER

- Partnered with Fit For Life to develop a free youth development program for marginalized youths
- Mentored youths ages 7-27 to develop leadership, social and professional skills
- Trained next-generation dancers and youth leaders

St. George's, GD

Jun. 2010 - Jun. 2017

Skills

Programming Languages	Python, JAVA, SQL, LaTeX, HTML5, CSS, PHP, R, C++
Machine Learning Tools	PyTorch, Tensorflow, Transformers, Pandas, Numpy, Scikit-learn, LLM, NLG, NLU
Data Scrapping	Twitter API, Selenium, Tesseract
Platforms	VS Codes, Epi Info, GeoDa, PyCharm IDE, IntelliJ IDE, Google Colab, Google Cloud
Professional	Health Informatics, Epidemiology, Database, Presentation, Critical Thinking, Artificial Intelligence, Data Science

Information System Projects

St. George's University

St. George's, GD

TELEMEDICINE & VIRTUAL HOSPITAL TEACHING PROJECT

Sept. 2020

- Led team to gather functional requirements, and make strategic recommendations
- Execute the appropriation, piloting, testing, and implementation telemedicine technology
- Provided comprehensive training to clinical educators and skillfully administered the go-live, resulting in a successful outcomes.

St. George's University

St. George's, GD

ONLINE CLINICAL EVALUATION EXERCISE PROJECT

Mar. 2019

- Spearheaded the creating, testing, piloting, training, and executing the online objective structured clinical examination
- Led team to re-engineer OSCE exam-flow and integrated with in-house platforms, done nowhere else in the world
- Prevented organization disruptions, aided smooth online transition that *saved St. George's University an estimated 2M+ dollars*

St. George's University

St. George's, GD

OSCE MANAGEMENT IMPROVEMENT PROJECT

Aug. 2017

- Led OMI requirements gathering for students, faculty, and standardized patients
- Oversaw testing and implementation of curated technologies for 32 additional clinical simulation rooms
- Supported medical education delivery for 4000+ students
- Delivered successful project within a tight timeframe while ensuring optimal outcome

St. George's University

St. George's, GD

B-LINE EXPANSION PHASE I PROJEC

Aug. 2014

- Led the outfitting 8 additional Clinical Examination rooms with clinical equipment, B-Line Medical equipment, and other educational supporting technologies

References

Ph.D Advisor - Dongwon Lee, Ph.D., The Pennsylvania State University

Phone: +1(814) 865-0687

Email: dongwon@psu.edu

Profile: <https://pike.psu.edu/projects.html>

Ph.D Mentor - Adaku Uchendu, Ph.D., MIT Linchon Lab

Phone: +1(301) 326-8363

Email: adaku.uchendu@ll.mit.edu

Profile: <https://adauchendu.github.io/publications/>

Undergrad Dean and Mentor - Theodore M. Hollis, Ph.D., Professor Emeritus, St. George's University

Phone: 1(954) 661-1773

Email: theodoremhollis@gmail.com, thollis@sgu.edu

Profile: <https://www.linkedin.com/in/theodoremhollisphd/>

M.Sc. Graduate Advisor and Mentor. - Vladimir Brusic, Ph.D., BEng(Mech), MEng(Biomed), GDip(CompSci), MApp-Sci(InfoTech), MBA, Boston University

Phone: +86 574 8818 0000 Ext 8809

Email: vladimir.brusic@nottingham.edu.cn

Profile: <https://www.nottingham.edu.cn/en/science-engineering/people/inspiring-people/vladimir-brusic.aspx>

Supervisor, (Ass. Dean and Chair) - Dolland Noel, M.D., FACP, St. George's University

Work: 444-4175 Ext: 3407/3172

Email: dnoel@sgu.edu

Profile: <https://www.linkedin.com/in/dolland-noel-19077864/?originalSubdomain=gd>

MPH Graduate Advisor and Mentor - Emanuel Keku, M.A, MSPH, M.D., FACP, St. George's University

Work: 444-4175 Ext: 3026

Email: ekeku@sgu.edu

Profile: <https://www.sgu.edu/research/sgu-research/emmanuel-o-keku-ma-msph-md-faha/>