

# Jason Lucas

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## EDUCATION

### THE PENNSYLVANIA STATE UNIVERSITY

PH.D. IN INFORMATICS

Con. Data Science and AI

GPA: 3.91

Aug. 2021 - May 2026 | University Park, PA

### ST. GEORGE'S UNIVERSITY

MASTER OF PUBLIC HEALTH

Epidemiology

GPA: 3.83

Jan. 2018 - May 2021 | Grenada, WI

### BOSTON UNIVERSITY

M.Sc. IN COMPUTER INFO. SYS.

Health Informatics

GPA: 3.64

Jan. 2012 - Sept. 2014 | Boston, MA

### ST. GEORGE'S UNIVERSITY

B.Sc. IN INFORMATION TECHNOLOGY

GPA: 3.64

Aug. 2007 - May 2010 | Grenada, WI

### PENN STATE LINDIV

LINGUISTICS & LANGUAGE SCIENCE

Certificate

Aug. 2022 - present | University Park, PA

## SKILLS

### AI/ML

• NLP • Deep Learning • LLMs • RAG  
• Transfer Learning • Prompt Engineering  
• Reasoning • Evaluation

### PROGRAMMING

• Python • SQL • PyTorch • R •  $\LaTeX$   
• C++ • Java • HTML • CSS • PHP  
• Shell Scripting • TensorFlow

### DATA SCIENCE

• Data Wrangling • Feature Engineering  
• Visualization • Web Scrapping  
• Predictive Analytics • Statistical Analysis

### PLATFORMS/TOOLS

• HuggingFace • VSCode • Google Colab  
• AdapterHub • EpiInfo • GeoDa • SAS  
• Oracle • MSSQL • GitHub • GCP • Azure  
• vLLM

### TRANSFERABLE

• Scientific Writing • Grant Writing  
• Project Management • Technical Training

## RESEARCH AREA

*Multimodal & Agentic AI*

*Low-Resource Multilingual NLP*

*Adversarial ML & Safe AI*

*Model Adaptation and Alignment Tuning*

*Harmful Content Generation & Detection*

*LLM, LRM, MLLM & Hallucination*

## EXPERIENCE

### THE PENNSYLVANIA STATE UNIVERSITY | GRADUATE ASSISTANT

Aug. 2021 - Present | PA, US

#### • Research Assistant

- Leads ML/NLP research under **Dr. Dongwon Lee** stewardship for combating harmful content (e.g., disinformation and deepfakes) across 70+ languages, modalities, and distribution gaps
- Mentors 5+ research interns, assists advisor with grant writing, and yields 6 top-tier publications (180+ citations) in **ACL**, **EMNLP**, **NAACL**, **COLING**, and **IEEE** venues
- Develop end-to-end pipelines using **PyTorch**, **vLLM**, **Hugging Face**, **AdapterHub**, and **APIs** (e.g., OpenAI, Anthropic, Cloudbank: Azure, Google Cloud Platform)
- Apply transfer learning (fine-tuning), prompt engineering, contextual AI learning, RAG & Agentic AI approaches for multilingual threat detection, adversarial attacks/robustness, multi-modal data generation, translation, & human studies, automatic evaluation.

#### • Teaching Assistant

- Managed course delivery, assessments, office hours, feedback & attendance for 3 computing classes (150+ students). Database Systems, Application Development, & Human AI Robotics Interactions
- Enhanced student engagement 40% through innovative teaching approaches

#### • NSF NRT Fellow

- Leads interdisciplinary & transdisciplinary AI research through **LINDIV** with \$9K NSF grant funding
- Collaborate with 10+ diverse researchers across 5 departments, advancing human-AI interaction

### ST. GEORGE'S UNIVERSITY | FACULTY

June 2011 - July 2021 | Grenada, WI

#### • Instructor, Head of Division & Technical Lead

- Led 6-person team supporting 4000+ medical students across 3 school terms
- Achieved 99.0% uptime managing SimCapture/Examsoft evaluation platforms
- Taughts 3+ courses across IT, Medicine, and Public Health programs

### GOVERNMENT OF GRENADA | INFORMATION TECHNOLOGY INSTRUCTOR

Aug 2010 - Jul 2011 | Grenada, WI

- Supervise class & managed IT infrastructure for 500+ students.
- Achieved 95% pass rate in CSEC IT examinations through targeted instruction
- Implemented digital literacy program reaching 300+ students

## INTERNSHIP

05/19/2025

05/01/2024

05/01/2023

02/01/2010

**Lawrence Livermore National Lab** • NLP, LLM, LRM, MLLM, Safe AI, Reasoning, MoA  
**Interaction LLC** • NLP, IVA, LLMs, Prompt Engineering, Con. AI, Dia. Summarization  
**Coalfire** • AI for Cybersecurity, Security Compliance and Standard, SOC, PCI  
**Flow Grenada** (LIME: Cable & Wireless) Networking, Mobile Tech, Database, IT Supp.

## AWARD

2024

2018

2012

2009

2008

Pan-African Professional Alliance Leadership, PSU

Chancellor's List for Academic Excellence, MPH

Excellence and Dedication to OSCE, SGU

Dean's List for Academic Excellence, B.Sc

Chancellor's List for Academic Excellence, B.Sc

## FELLOWSHIP

2022-24

2021-22

2018-20

2007-10

Linguistic Diversity Across the Lifespan, National Science Foundation.

Funds for Excellence in Graduate Recruitment, Penn State University.

Graduate Faculty Fellowship, St. George's University

Undergraduate Scholarship, Government of Grenada.

## SERVICE

Committee Member • MASC-SLL '25  
Committee Member • COLING '24  
Committee Member • IST GBoR'24  
Peer Reviewer • ACL' 23, 24, 25  
IT Officer • Pan-African Prof. Alliance' 23  
President • Graduate Student Assc' 22  
Outreach Coordinator • LinDiv' 22  
Volunteer • EMNLP Volunteer' 23  
IT Officer • Red Cross Grenada' 20

## MENTORSHIP

- 1 • CRA UR2PhD Grad
- 2 • Millennium Scholars
- 3 • Penn State Undergraduate

## RELEVANT COURSES

**Interdisciplinary Research** -IST PSU  
• Data Mining • Social Informatics  
• Human Computer Interactions  
**Transdisciplinary Research** -LinDiv  
• Generative Syntax • Linguistics  
• Transdisciplinary Team Research  
**Multilingual NLP** -CLS & IST PSU  
• Transfer Learning • Prompt Engineering  
• Adversarial ML & DL • Generative AI  
• Conversational AI • Reasoning  
• Mixture-of-Agents  
**Epidemiology** -SGU  
• Data Management & Analysis  
• Chronic & Infectious Disease Epi  
**Health Informatics** -BU  
• Advance Health Informatics

## INVITED TALKS

Munich NLP •2025  
WXXI News NPR •2024  
Cohere For AI •2024  
St. George's University •2023  
CRA-WP IDEALS •2023

## TEACHING EXPERIENCE

Applied Generative AI •2025  
Human, Robotics & AI in Action •2025  
Organization of Data •2022  
Application Development •2021  
Health Informatics •2016  
Database System •2010

## SELECTED PUBLICATIONS

Conference Publications [240 citations]

- [1] Jason Lucas, John Chen, Ali Al-Lawati, Mahjabin Nahar, and Mahnoosh Mehrabani. **Chain-of-Interactions: Iterative ICL Framework for Abstractive Task-Oriented Dialogue Summarization of Conversational AI Interactions**. In *EMNLP Findings*, 2025.
- [2] Ali Al-Lawati, Jason Lucas, Zhiwei Zhang, Prasenjit Mitra, and Suhang Wang. **Graph-based Molecular In-context Learning Grounded on Morgan Fingerprints**. In *EMNLP Findings*, 2025.
- [3] Ekaterina Artemova, Jason Lucas, Saranya Venkatraman, Jooyoung Lee, Sergei Tilga, Adaku Uchendu, and Vladislav Mikhailov. **Beemo: Benchmark of Expert-edited Machine-generated Outputs**. In *NAACL Main Conference*, 2025.
- [4] Ali Al Lawati, Jason Lucas, and Prasenjit Mitra. **Semantic Captioning: Benchmark Dataset and Graph-Aware Few-Shot In-Context Learning for SQL2Text**. In *COLING Main Conference*, 2025.
- [5] Dominik Macko, Robert Moro, Adaku Uchendu, Ivan Srba, Jason Lucas, Michiharu Yamashita, Nafis Irtiza Tripto, Dongwon Lee, Jakub Simko, and Maria Bielikova. **Authorship Obfuscation in Multilingual Machine-Generated Text Detection**. In *EMNLP Findings*, 2024.
- [6] Jason Lucas, Adaku Uchendu, Michiharu Yamashita, Jooyoung Lee, Shaurya Rohatgi, and Dongwon Lee. **Fighting Fire with Fire: The Dual Role of LLMs in Crafting and Detecting Elusive Disinformation**. In *EMNLP Main Conference*, 2023.
- [7] Dominik Macko, Robert Moro, Adaku Uchendu, Jason Lucas, Michiharu Yamashita, Matúš Pikuliak, Ivan Srba, Thai Le, Dongwon Lee, Jakub Simko, and Maria Bielikova. **MULTITuDE: Large-Scale Multilingual Machine-Generated Text Detection Benchmark**. In *EMNLP Main Conference*, 2023.
- [8] Jason Lucas, Limeng Cui, Thai Le, and Dongwon Lee. **Detecting False Claims in Low-Resource Regions: A Case Study of Caribbean Islands**. In *ACL Workshop on Combating Online Hostile Content*, 2022.

Journal Publications [20 citations]

- [9] Dominik Macko, Aashish Anantha Ramakrishnan, Jason Lucas, Robert Moro, Ivan Srba, Adaku Uchendu, and Dongwon Lee. **Beyond speculation: Measuring the Growing Presence of LLM-generated texts in Multilingual Disinformation**. *IEEE Computer*, 2026. [Accepted].
- [10] Jason Lucas, Maung Maung Barani, Tabar Maryam, McBride Keegan, and Lee Dongwon. **The Longtail Impact of Generative AI on Disinformation: Harmonizing Dichotomous Perspectives**. *IEEE Intelligent Systems*, 2024.
- [11] Maung Maung Barani, McBride Keegan, Jason Lucas, Tabar Maryam, and Lee Dongwon. **Generative AI Disproportionately Harms Long Tail Users**. *IEEE Computer*, 2024.

## SELECTED PROJECTS

**NLP & APP DEV. RESEARCH PROJECTS | PENN STATE UNIVERSITY LINDIV NSF NRT**  
Lead Researcher & App Developer | 2023 - Present

- **BABsANT: AI-Powered Speech Pathology Platform**
  - Engineered multilingual AI platform with GPT-4 & Whisper for speech pathology across 5+ languages
  - Built Streamlit interface, reducing assessment time by 60% with 98% accuracy through in-context learning
- **Intelligent Virtual Assistant for Customer Service**
  - Developed novel summarization approach for customer service task-oriented dialogue in real-world settings
  - conduct human study and boosted large and small LLM quality and accuracy by 70% for conversational AI systems using LLMs
- **Scientific Reasoning for Multilingual AI**
  - Developed novel approaches to improve mathematical reasoning across LRMs and LLMs in low-resource multilingual settings
  - Implemented agentic AI mixture of agents framework for enhanced scientific reasoning capabilities

**MEDICAL INFORMATICS | ST. GEORGE'S UNIVERSITY**  
Technical Lead & Project Manager | 2019 - 2021

- **Online Clinical Evaluation Exercise (OCEX)**
  - Led virtual clinical examination system for 3000+ students with 5-platform integration
  - Accelerated processing by 40% while achieving 98% satisfaction rating
- **B-Line SimLab Expansion**
  - Managed B-Line Medical lab expansion serving 4K+ students annually
  - Led 15-member cross-departmental team, increasing capacity by 250%