

ZACHARY A. BOLTON

Machine Learning Engineer



Phone: +1-770-334-9062

Email: zacbolton2129@gmail.com



ZacharyABolton



ZacABolton



Portfolio

I'm a machine learning researcher and engineer passionate about pushing the boundaries of AI while ensuring it delivers real-world value. My work spans from implementing transformer architectures to developing novel approaches for historical document verification. I combine rigorous technical methodology with creative problem-solving, bringing both theoretical understanding and practical engineering skills to every project. Currently completing my BSc in Computer Science with a focus on ML/AI, I'm eager to contribute to groundbreaking research that shapes the future of machine learning.

EDUCATION & RESEARCH

- **University of London:** BSc in Computer Science (Machine Learning & AI) | GPA: 90% | March 2025
- **Research: Transformer-Based Authorship Verification**
 - Implemented Siamese Sentence-BERT architecture achieving competitive performance (AUC: 0.900, F1: 0.785) on VALLA benchmark dataset against PAN 2020 shared task participants
 - Developed novel LILA dataset with robust genre/topic bias controls, achieving near-perfect metrics (AUC/F1/C@1 > 0.99) across multiple distorted views
 - Integrated text distortion techniques with transformer architectures to enhance model robustness against topic/genre overfitting
 - Technologies: PyTorch, HuggingFace Transformers, Python Scientific Stack

EXPERIENCE

Independent ML Research

University of London

2023-present

- Advanced authorship verification through integration of transformer architectures with comprehensive evaluation pipeline (AUC, c@1, F1, F0.5u metrics)
- Implemented novel text distortion techniques for enhanced model generalization
- Previous iteration explored feature engineering approaches with feed-forward networks, Spatium-L1 algorithm variations, and FAR/FRR metrics
- Developed and deployed data processing/ML pipeline to AWS-EC2 handling 10M+ words across multiple views

Kid Chess, Inc.

Marietta, Georgia

2015-present

Software Engineer and Director of Technology

- Created and deployed AI-driven feedback system using OpenAI's GPT-4 API, enhancing personalized learning for 3000+ students
- Led development of online learning platform serving 3000+ students (Angular, Azure Cloud)
- Automated business processes using Python data processing pipelines
- Managed technical team response to pandemic, achieving 90% student retention through platform transition

ML/AI Skills:

- PyTorch & HuggingFace
- Transformer Architectures
- NLP & Text Processing
- Experiment Design
- Model Evaluation
- Data Preprocessing
- AWS-EC2 & S3

Programming:

- Python Scientific Stack
- Typescript/Javascript
- Erlang/OTP
- SQL & Data Processing
- Git/Version Control

Soft Skills:

- Research & Analysis
- Technical Writing
- Problem Solving
- Project Management
- Teamwork