DR. HARUNA ISAH

IBM-SOSCIP Postdoctoral Fellow and Associate Fellow of the UK Higher Education Academy
Big-Data Analytics and Management Laboratory (BAM Lab)
School of Computing, 25 Union Street, 544 Goodwin Hall
Queen's University, Kingston, ON, Canada
Email: Isah@cs.queensu.ca | **Web**: https://hisah.github.io/ | **Tel**: +1 (343) 364-2181

RESEARCH INTEREST

My current work is focused on multilevel streaming data analytics with application to Web, media, IoT, and healthcare data processing for predictive analytics. My research interests include: Big Data Analytics and Infrastructure, Streaming Data Analytics, Natural Language Processing, Machine Learning, and Graph Analytics.

EDUCATION

2013 - 2017	**PhD in Computing**	
	University of Bradford, UK	
2011 - 2012	**MSc in Software Engineering**	
	University of Bradford, UK	
2002 - 2008	**B.Eng. Electrical and Electronics Engineering**	
	University of Maiduguri, Nigeria	

AWARDS

2019	**Finalist**, SOSCIP 3 Minute Impact Competition, Advanced Ontario 2019.
2018	**Travel Grant**, Queen's Post-Doctoral Travel Award, 2018 IEEE International Conference on Big Data
2018	**Finalist**, SOSCIP Postdoctoral Fellows Lightning Round Competition, OARCC 2018
2013 – 2016	**Commonwealth Scholarship**, PhD
2015	**Travel Grant**, WAW2015 School on Complex-Networks and Graph Models
2011-2012	**NITDEF Scholarship**, MSc.

ACADEMIC EXPERIENCE

November 2017 – October 2019	**IBM-SOSCIP Postdoctoral Fellow** Queen's University, Kingston, ON, Canada Responsibilities: IBM-SOSCIP project, journal publication, conference/workshop organization and presentation, guiding researchers at BAM Lab. **IBM-SOSCIP Project:** Multilevel Streaming Data Analytics Infrastructure for Predictive Analytics
January 2015 - May 2017	**Research Assistant** University of Bradford, UK Responsibilities: advising postgraduate, undergraduate and interns with big data and machine learning projects.
July 2010 - October 2017	**Teaching Assistant/Assistant Lecturer** Federal University of Technology (FUT), Minna, Nigeria

	Responsibilities: teaching, advising, and supervising undergraduate students.
January 2010 - July 2010	**Engineer II** NASENI (PEEMADI), Okene, Nigeria Responsibilities: Power and electronics prototype development

PROFESSIONAL AFFILIATIONS AND SERVICES

2018	**Sessions Chair**, The 9th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEEE IEMCON 2018)
2018	**Co-Chair**, Large-Scale Multilevel Streaming Data Analytics Workshop (CASCON'18)
2014 - 2017	**Chair,** University of Bradford ACM Student Chapter Responsibilities: responsible for leading the Chapter and managing its activities
2014 – 2015	**PGR Student Representative** University of Bradford, UK Responsibilities: School of Electrical Engineering and Computer Science postgraduate research students' representative at Student Staff Liaison Committee (SSLC)
2015	**Programme Committee Member** The 5th Imperial College Computing Student Workshop (ICCSW'15) Responsibilities: University of Bradford ambassador
2014	**Programme Committee Member** 14th UK Workshop on Computational Intelligence (UKCI2014) Responsibilities: Peer review and administration

PROFESSIONAL TRAININGS

2019	Core Competency Module for Sex and Gender in Primary Data Collection with Humans, Canadian Institutes of Health Research (CIHR).
2019	Core Competency Module for Sex and Gender in the Analysis of Data from Human Participants, CIHR.
2016	Diversity in the Workplace, University of Bradford, UK
2016	Learning & Teaching in Higher Education University of Bradford, UK
2015	WAW2015 School on Complex Networks and Graph Models, The Netherlands
2015	Machine Learning: A Computational Intelligence Approach (MLCI) Genova, Italy
2015	Marking, Assessment & Feedback, University of Bradford
2015	Starting to Teach, University of Bradford, UK

2015	Induction to Teaching, University of Bradford, UK
2015	International Winter School on Big Data Tarragona, Spain
2013	Module Road Map for Commonwealth PhD Scholars, Windsor, UK

TALKS AND PRESENTATIONS

2019	SOSCIP 3 Minute Impact Competition, AO '19
2018	Short Talk; 28th Annual International Conference on Computer Science and Software Engineering CASCON '18
2018	Post-doctoral Fellow Research Showcase; Queen's University
2018	SOSCIP Lightening Round Presentations, OARCC'18
2017	Social Media Mining for Crime Intelligence; University of Bradford SEEC Seminar
2015	Bipartite Network Model for Inferring Hidden Ties in Crime Data; ASONAM/FOSINT-SI
2015	Sentiment Analysis of User-Generated Contents for Pharmaceutical Product Safety; MLCI
2015	Research Opportunities and Challenges in Big Data: BigDat2015 Lessons
2015	Understanding ACM Student Member and Chapter Benefits
2015	Social Media Analysis for Combating Counterfeit Products; Progression to PhD
2014	Social Media Analysis for Product Safety Using Text Mining and Sentiment Analysis

PUBLICATIONS

Ge, S., **Isah, H.,** Zulkernine, F., and Khan, S. (accepted).
> A Scalable Framework for Multilevel Streaming Data Analytics using Deep Learning, *IEEE Computer Society Signature Conference on Computers, Software and Applications (COMPSAC 2019)*, Marquette University, Milwaukee, Wisconsin, USA July 15-19.

Gallant, M., **Isah, H.,** Zulkernine, F., and Khan, S. (accepted).
> Xu: An Automated Query Expansion and Optimization Tool, *IEEE Computer Society Signature Conference on Computers, Software and Applications (COMPSAC 2019)*, Marquette University, Milwaukee, Wisconsin, USA July 15-19.

Shah, D., **Isah, H.,** and Zulkernine, F. (accepted)
> Stock Market Analysis: A Review and Taxonomy of Prediction Techniques, *Special Issue on New Trends in Algorithmic Trading, MDPI International Journal of Financial Studies (IJFS)*.

Isah, H., Zulkernine, F., 2018.
> A Scalable and Robust Framework for Data Stream Ingestion, *IEEE International Conference on Big Data, Seattle, USA, IEEE*.

Shah, D., **Isah, H**., Zulkernine, F., 2018.
> Predicting the Effects of News Sentiments on the Stock Market", *IEEE International Conference on Big Data, Seattle, USA, IEEE*.

Mahfuz, S., **Isah, H**., Zulkernine, F., Nicholls, P., (2018).

Detecting Irregular Patterns in IoT Streaming Data for Fall Detection, *IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), British Columbia, Canada, IEEE.*

Kandhari, M., **Isah, H.,** Zulkernine, F., (2018).
A Voice Controlled E-Commerce Web Application, *IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), British Columbia, Canada, IEEE*.

Zulkernine, F., **Isah, H.,** Givigi, S., Liu, Y., Shim, E., & Elsayed, M., (2018).
Large-Scale Multilevel Streaming Data Analytics, *28th Annual International Conference on Computer Science and Software Engineering, October 29 - 31, 2018, Hilton Toronto/Markham Suites Conference Center and Spa.*

Leung, T., Zulkernine, F., & **Isah, H**., (2018).
The use of Virtual Reality in Enhancing Interdisciplinary Research and Education, *Proc. of the 12th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2018)*, Orlando, FL, USA.

Isah, H. (2017).
Social Data Mining for Crime Intelligence: Contributions to Social Data Quality Assessment and Prediction Methods (Doctoral dissertation, University of Bradford).

Isah, H., Neagu, D., & Trundle, P. (2015).
Bipartite network model for inferring hidden ties in crime data. *In Proceedings of the 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* 2015 (pp. 994-1001). ACM.

Isah, H., Trundle, P., & Neagu, D. (2014).
Social media analysis for product safety using text mining and sentiment analysis. *In Computational Intelligence (UKCI), 2014 14th UK Workshop on (pp. 1-7)*. IEEE.

Isah, H. (2012).
Full Data Controlled Web Based Feed Aggregator: Open Source and Feed Syndication in Research, Intelligence Gathering, Information Sharing and Business Enterprise. *LAP Lambert Academic Publishing*.

MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

Isah H., Abughofa T., Mahfuz S., Ajerla D., and Zulkernine F. (under review).
A Survey of Streaming Data Processing Engines, *IEEE Transactions on Data and Knowledge Engineering (TKDE).*

Abughofa, T., Zulkernine, F., **Isah, H**. (under review)
Incremental Community Detection in Distributed Dynamic Graphs, *IEEE Transactions on Big Data*

RECENT STUDENT'S PROJECT SUPERVISION

Chantal Montgomery: Co-supervised with Dr Farhana Zulkernine and Dr Hasan Zafari
- Project title: Cloud interface for voice/text enabled query processing

Ruoran Liu: Co-supervised with Dr Farhana Zulkernine
- Project title: Distributed data management and integration for Peoplesoft

Grace Ge: Co-supervised with Dr Farhana Zulkernine
- Project title: Streaming data ingestion and analytic workflow management

Morgan Gallant: Co-supervised with Dr Farhana Zulkernine
- Project title: Query extension for natural language query processing

Thibault Brossard: Co-supervised with Prof. Daniel Neagu
- Project title: Sentiment analysis of social media data for combating counterfeit pharmaceuticals

RECENT SOFTWARE TOOLS AND MODELS DEVELOPED

1. Xu: An Automated Query Expansion and Optimization Tool
   - https://github.com/queensbamlab/Xu
   - https://github.com/queensbamlab/XuEval
2. A scalable and fault-tolerant data stream ingestion and integration framework
   - A component of the multilevel framework in 4
3. A deep learning model for sentiment analysis and fake news detection
   - A component of the multilevel framework in 4
4. A prototype for multilevel streaming data analytics
   - Currently being developed

SKILLS

Programming: Python, Scala, Java, SPL, R
OS: Windows and Linux
Tools and Platforms: Hadoop, Spark, Storm, Flink, Kafka, NiFi, Solr, Cassandra, IBM Watson, IBM Streams, Maven, SBT, ZooKeeper, Tensorflow, Scikit Learn, NLTK, Anaconda, RStudio, Zeppelin, Jupyter, IntelliJ, Azure, Hortonworks, Google Cloud, AWS.
Methodology/Techniques: Word Embeddings, Deep Learning, Classification, Clustering, Topic Modelling, Sentiment Analysis, Deduplication, Speech and Voice Recognition.