



EDUCATION

Oct 2019 May 2023	University of Cambridge, PhD. Computer Science > Research topic on the optimization of Computer Systems with Bayesian optimization. > Awarded funding from <i>The Alan Turing Institute</i> , the national institute for data science and AI. > Awarded an <i>Honorary Cambridge Trust</i> scholarship.	Cambridge, UK
Oct 2018 Jun 2019	University of Cambridge, MPhil. Advanced Computer Science > Awarded <i>Cambridge Trust & Students of Cambridge</i> scholarships. > Achieved a <i>Distinction</i> (80%) in a research master on optimizing large-scale systems using machine learning.	Cambridge, UK
Sep 2014 Jun 2018	The University of Manchester, BSc. Computer Science with Industrial Experience > Awarded <i>Head of School Award</i> for an outstanding contribution to the life of the School of Computer Science. > Consistently achieved <i>First Class</i> (80%) results in every year. > Elected as the second-year students' representative.	Manchester, UK



EXPERIENCE

Jul 2019 Oct 2019	Twitter, Software Engineer Intern - Events Quality > Structured Twitter's event page by analyzing and classifying the perspective of tweets. > Experimented with real-time clustering algorithm for detecting break-out events.	London, UK
	<div>Real-Time Clustering Algorithm</div> <div>Machine Learning</div> <div>Unsupervised Learning</div> <div>Scala</div>	
Jun 2018 Sep 2018	Twitter, Software Engineer Intern - Live Video > Reduced abuse in broadcasts chats by implementing a machine learning-based model to classify messages. > Visualised the project's impact by designing MapReduce jobs to analyse data from multiple sources.	London, UK
	<div>Scala</div> <div>Go</div> <div>SQL</div> <div>AWS</div> <div>gCloud</div>	
Jun 2017 Sep 2017	Google, Site Reliability Engineer Intern - Google Cloud > Automated the detection of anti-pattern usage of Cloud DataStore by designing a batch job running over petabytes of data. > Improved site reliability engineers' response time to escalations by providing dashboards that analyze customer usage patterns.	London, UK
	<div>Python</div> <div>Golang</div> <div>SQL</div> <div>MapReduce</div> <div>gCloud</div> <div>SRE</div>	
Jul 2016 Jun 2017	Amazon, Software Development Engineer - Prime Video > Reduced costs incurred on our team by £2M through optimising our cluster's configurations and host types. > Developed a low-latency customer-facing microservice with strict reliability and privacy requirements. > Provided the BI team with real-time analysis by using Kinesis stream into our data warehouse.	London, UK
	<div>AWS</div> <div>Python</div> <div>Java</div> <div>Spring</div> <div>DevOps</div>	
Sep 2015 Jun 2018	The University of Manchester, Student Assistant - School of Computer Science > Developed outreach activities using Drones and Oculus to teach programming in schools. > Integrated the school's labs into AWS and Azure and produced lab manuals.	Manchester, UK
	<div>Azure</div> <div>NodeJS</div> <div>OculusRift</div>	



PUBLICATIONS

2021 <i>Conference</i>	BoGraph : Structured Bayesian Optimization From Trace. <i>Sami Alabed, Eiko Yoneki. In review</i> > Structured Bayesian optimization with automated structure discovery from trace using Bayesian Network. > BoGraph auto-tuned the co-design of a hardware accelerator and optimize the energy latency by 5.4x.	In Review
	<div>Causal Graph</div> <div>Bayesian Network</div> <div>Bayesian Optimization</div> <div>SoC optimization</div>	
2021 <i>Workshop</i>	High-Dimensional Bayesian Optimization with Multi-Task Learning for RocksDB. <i>Sami Alabed, Eiko Yoneki. ISBN : 9781450382984, DOI:10.1145/3437984.3458841</i> > Optimized the database I/O throughput by 1.3x and was 5x faster than other optimization methods. > Contributed a method that injects expert knowledge in a multi-task Gaussian Process.	EuroSys, EuroMLSys21
	<div>Bayesian Optimization</div> <div>Multi-task Gaussian Process</div> <div>System Optimization</div>	
2019 <i>Preprint</i>	RLCache : Automated Cache Management Using Reinforcement Learning. <i>Sami Alabed. arXiv:1909.13839</i> > Improved cache management decisions by 20% using a multi-agents RL that performs eviction, TTL estimation, and caching decisions.	arXiv
	<div>Reinforcement Learning</div> <div>Multi-agent Reinforcement Learning</div> <div>System Optimization</div>	

SELECTED PROJECTS

OPEN SOURCE PROJECTS

MULTI-OBJECTIVE BAYESIAN OPTIMIZATION IN GARBAGE COLLECTOR

Improved the read and write latency of Cassandra by 30% compared to baselines by tuning its garbage collector parameters. Constructed the Gaussian Process using ICM kernel to model the multi-task nature of the problem.

[PyTorch](#) [Bayesian Optimization](#) [Python](#)

REINFORCEMENT LEARNING CACHE MANAGER

Optimised cache utilisation by 20% by building a multi-task reinforcement learning powered cache manager to estimate time-to-live and make caching & eviction decision keys. Built a framework to model cache management as a reinforcement learning problem, the framework supported multi-agent and single agent implementations.

[GitHub](#) [Tensorflow](#) [Reinforcement Learning](#) [Python](#)

METHOD NAME PREDICTION

Implemented a convolutional attention network to summarise Java source code and predict suitable method name based on a published research paper.

[GitHub](#) [Tensorflow](#) [Machine Learning](#) [Keras](#) [Python](#) [NLP](#) [CNN](#) [Attention](#)

EDGE COMPUTING : IOT ON THE EDGE

Reduced the IoT devices dependency on the cloud and improved their performance by building elastic and reliable edge network by using Docker containers.

[Docker](#) [Edge Computing](#) [Python](#) [FaaS](#) [IoT](#)

KALAHAI : BOARDGAME BOT

Developed a self-learning bot to play Mancala inspired by AlphaGo's paper.
Awarded highest score in term of speed and win rate against 13 other bots.


[GitHub](#) [Tensorflow](#) [Reinforcement Learning](#) [AlphaGo](#) [Python](#)

HACKATHONS PROJECTS

GENIE : THE SMART CHATBOT FOR EVERYDAY SERVICES,

HACKATHON : HackLondon, 2016


A chatbot written in NodeJs integrated with various online services to ease the process of purchasing online.

 **Awards :** JP Morgan's Hack Choice. [NodeJs](#) [Natural Language Processing](#)

MEDREADER,

HACKATHON : AMEE Hackathon, 2015

Speed reading app using Java to ease the consumption of medical papers.

 **Awards :** First Place and the Best Use of Elsevier Data. [Java](#) [ElasticSearch](#)

CURRENCY&STOCK OFFLINE TRADER,

HACKATHON : Warwick University Hackathon, 2014

Financial querying system to enable currency and stock exchange through SMS built using Java.

 **Awards :** Best use of Bloomberg API. [Java](#) [SMS](#)

LEADERSHIP

Sep 2017 Jun 2018	Peer Assisted Study Session, PASS2 Coordinator ‣ Awarded <i>Outstanding Contribution to Peer Support</i> award. ‣ Improved the employability of students by running interview preparation, industry talks, and CV workshops.	Manchester, UK
Sep 2015 Jun 2016	Microsoft - DevEvangelist, Student Partner ‣ Ranked in the top five Microsoft student partners in impact on Software Development, and Leadership. ‣ Increased the adaptability of Microsoft's development tools and cloud services by hosting training workshops.	Manchester, UK
Sep 2015 Jun 2016	HackSoc MCR, Co-Founder ‣ Ran HackSoc focusing on hackathons and tech workshops and won the EU student hackathon league twice. ‣ Managed a team of 30 students to raise sponsorship for a total of £65,000 and co-organised seven hackathons.	Manchester, UK

TEACHING

Research projects	Model-based Reinforcement Learning in Optimizing Deep Learning Graphs (2019-20). Auto-tuning Spark with Directed Acyclic Graph Models in Bayesian Optimization (2019-20).
Developing Labs	Large-Scale Data Processing and Optimization, Data Science.
Courses Supervision	Concurrent and Distributed systems, Data Science, Machine Learning and Bayesian Inference.
Tutorials	Large-Scale Data Processing and Optimization.