NATHAN HALL

4th Year Computer Science

Leicestershire, UK
+44 77 1534 2349
hallnath42@gmail.com
University of Warwick
github.com/hallnath1
linkedin.com/in/hallnath1

EDUCATION

2017 – 2021 **MEng Computer Science (achieving 1st Class)** — **University of Warwick**

Compiler Design (84%)
Fault Tolerant Systems (81%)
Mathematics Fundamentals (78%)
Quantum Computing (current)

Programming for Computer Scientists (84%)
Web Development Technologies (80%)
Database Systems (77%)
Computational Biology (current)

2015 – 2017 **A-Level** — **Lutterworth College**
Maths (A*), Further Maths (A*),Physics (A*), Computer Science (A*)

2013 – 2012 **GCSE** — **Lutterworth College**
11 A*/A (including Maths and English Language)

PUBLICATIONS

July 2020 **CASTLEGUARD: Anonymised Data Streams with Guaranteed Differential Privacy** — **DASC 2020**
This paper proposes *Continuously Anonymising STreaming data via adaptive cLustEring with GUARanteed Differential privacy* (CASTLEGUARD), a data stream anonymisation algorithm that provides a reliable guarantee of k-anonymity, l-diversity and differential privacy to data subjects. Published in the 18th IEEE International Conference on Dependable, Autonomic and Secure Computing .
`Big Data / Data Streaming / Data Mining / Python`

EXPERIENCE

Summer 2020 **Technology Analyst** — **Deutsche Bank - London**
Discovered technologies growing place in the financial sector and gained an appreciation for the countless variation of possibilities for a Technology Analyst. Worked closely within the Market Risk team, took part in stand-up meetings and followed an Agile methodology. Used the Azure ML system to develop and present a Machine Learning model for COVID-19 cases and death predictions in American counties.
`Microsoft Azure ML / Python / Keras / Tableau`

Summer 2018 **Cyber Insight Summer School** — **HM Government - Cheltenham Spa**
An intensive 10-week program focused on defensive & offensive cyber technologies. Involved in-depth training on Digital Forensic techniques involved in Reverse Engineering software, with the aim of discovering concealed malware. Importantly developed secure coding skills for a cyber-secure mindset when coding.
`Digital Forensics / Web Security / Penetration Testing / IoT Security`

Summer 2016 **Biometric Software Internship** — **Barclaycard - Northampton**
Worked with Business Analysts developing a prototype for a biometric authentication hub for the Barclaycard employee systems. The project was awarded a Gold CREST award.
`Java / Balsamiq`

2017 - Present **Computer Science and Mathematics Tutor (GCSE/A-Level/University)** — **MyTutor.co.uk**
I adapt my tutoring depending on each exam board's specific requirements. The variation in level, content and each individual student requires me to explain similar concepts with varying degrees of complexity and approaches.

PROGRAMMING LANGUAGES

- Java
- Python
- C++
- Rust
- SQL
- Haskell
- React
- Vue.js

OPERATING SYSTEMS

- Linux/Unix
- Microsoft Windows
- Apple MacOS

PRODUCTIVITY/TECHNOLOGY

- LaTeX/BibTeX
- Git/GitHub
- Trello/Jira
- Slack/Teams
- OpenCV
- Travis CI/Jarvis
- Keras/Tensorflow
- Docker/Kubernetes

PROJECTS

September 2020
4th Year Dissertation

Sybl - Machine Learning with Ensemble Methods **University of Warwick**
A zero-code Data Science solution utilising cutting edge Dependability Engineering and Edge Computing technology. The aim is to empower everyone to share in the benefits of Data Science, regardless of their technical literacy, access to computational resources or geographic location.
`Distributed Computing / Rust / Vue.js / Machine Learning / Ensemble Learning`

April 2020
3rd Year Dissertation

Simulating Ad-Hoc, Swarm-Based Routing Protocols **University of Warwick**
As part of my dissertation I analysed the applicability for Swarm Inspired algorithms in various Mobile Ad-Hoc Network environments. Focusing primarily on the emergent intelligence of ant colony's and beehives, I produced a NS-3 simulation in C++ and proposed a modified Ant Routing Algorithm (ARA) using an exponential decay function.
`C++ / Network Simulation / Swarm Intelligence`

March 2019
DBCampus Project

Cieve - Machine Learning Enhance Recruitment System **University of Warwick // Deutsche Bank**
Part of the 2019 DBCampus Software Engineering Project. I worked in a SCRUM as Project Manager and Back-end Developer in a team of 6 to develop a Machine Learning powered recruitment system. To assess applicants they are fed into a batch gradient descent on a sparse neural network. After presenting to the projects stakeholders, they were impressed with the projects full GDPR compliance, transparent user interface and the systems ability for complete customization, for universal deployment. As such I was awarded the prize for the best project from representatives from Deutsche Bank.
`Python Flask / MongoDB / GDPR Compliance / Deep Learning`

November 2018
BofA Sponsored

Multi-Threaded Packet Sniffer **University of Warwick // Bank of America**
Developed using C with the PThread library a packet sniffer with concurrent thread management and deadlock avoidance. Achieved award from Bank of America for one of the top projects
`C / Parallel Processing / Thread Pooling / Mutex Locks`

August 2018

Biometric Password Manager **biopass.ml**
Developed a biometric powered password manager that generates passwords based on the capture of biometric data. Aimed to improve the UX and reduce the friction of password managers, to promote their use to a wider audience.
`PHP / Javascript / OpenCV`

HOBBIES

Shotakan Karate I have trained in Shotakan Karate for 15 years, during which I have achieved the grade of 2nd Dan Black Belt. This is a very individually focused sport that requires high concentration, commitment and determination to improve and develop.

Ultimate Frisbee Since joining university I wanted a new challenge to other sports I have played in the past, like cricket and football. Ultimate Frisbee is a fast-pace highly competitive team sport with a big focus on good spirit and communication. In the club, I have taken on the role of Publicity and Communication Officer. As a part of this role I updated the clubs social media presence and modernized its website to help promote the sport.

REFERENCES

Professor Rob Proctor (Personal Tutor)

University of Warwick
+44 24 7657 3783
Rob.Procter@warwick.ac.uk

Matthew Leeke (Supervisor)

University of Warwick
+44 24 7652 3366
Matthew.Leeke@warwick.ac.uk