

# Jonas Osborn

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## CONTACT

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## PROFILE

I am an M.Eng. Computer Science graduate from the University of Bristol keen to apply my programming skills and knowledge of machine learning to interesting and difficult problems.

## EDUCATION

**M.Eng. Computer Science**, University of Bristol **2014–2019**

- Conducted a master's research project developing new machine learning algorithms: "Learning change using density ratio estimation with conditional probabilities."
- Units studied include:  
Machine Learning, Applied Deep Learning, Applied Statistics, Advanced High Performance Computing, Advanced Computer Architecture, and Advanced Algorithms.

## PROJECTS

**Heterogeneous Lattice Boltzmann Method Implementation (scored 80%)**

Implemented a highly optimised lattice Boltzmann method solver for running on heterogeneous super computers across multiple nodes with GPU accelerators.

**Change Point Detection in Time Series Data - master's thesis (scored 74%)**

Formulated two novel algorithms for change point detection in time series data based upon density ratio estimation methods. Extended current research to target data with dependencies by estimating conditional probability ratios.

**Advanced Superscalar Processor Simulator (scored 75%)**

Developed a simulator for a modern computer processor in Python. Included modern features such as a superscalar architecture, out of order execution and dynamic branch prediction.

## SKILLS

**High Performance Programming**

- Scored an average of 77% across three high performance computing courseworks.
- Experience writing parallel code for supercomputers with both a distributed memory model (MPI) and a shared memory model (OpenMP) as well as code for GPUs (OpenCL) and extremely efficient serial code using intrinsics and assembly.

**Machine Learning**

- Averaged 89% across Machine Learning course work in third year.
- Experienced at implementing algorithms in Python with packages such as NumPy, Jupyter and Tensorflow.

**Software Engineering**

- Major familiarity working in Python and C++, using Python for the majority of course work and personal projects and C++ for a large third year project and work as a developer.
- Extensive experience working in teams, collaborating using Git from two large university software engineering projects along with work at Legions: Overdrive.

## EXPERIENCE

**Computer Science Tutor**, Norfolk Summer School **2016–2019**

- Delivered subject tutorials over week long summer schools.
- Planned and presented lessons on key concepts of Computer Science to A-Level students.
- Conducted mock interviews to prepare students for university admissions.

**Developer**, Legions: Overdrive **2013–2016**

- Contributed to the development of a 3D video game: Legions: Overdrive, writing low-level engine code in C++ along with game functionality in scripting languages.
- Led the creation of a stats aggregation web application for collating and displaying the useful gameplay information from a large database of data.