

# Hari Jackson

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Passionate technologist with a demonstrated history of building effective solutions to conceptually-tricky problems

## EDUCATION

### Cambridge University

2015-19 • MPhil, PhD  
Scientific Computing (Distinction)

### Oxford University

2010-14 • BA, MMath  
Maths (Double First)

### Bedford School

2006-10 • GCSE, GCE, IB  
Top grade in every subject

## CERTIFICATIONS

### AWS

Associate Developer

### CFA

Level 1 (top band in all topics)

### GRE

Quantitative 170/170  
Non-Verbal 167/170  
Mathematics 870, 91%

## COMPUTING

### Languages

Python • C++ • Bash • Node.js

### Cloud Platforms

AWS • GCP

### Specializations

automation • NLP • computer vision • data processing • HPC • microservices • visualization

### Operating Systems

Linux • macOS • Windows

## LINKS

haranjackson.com  
github.com/haranjackson  
linkedin.com/in/haranjackson  
numericam.dev  
calendly.com/haranjackson

## EMPLOYMENT

### techspert.io • CTO / Chief Architect

Oct 2017 - Now

- Designing company's tech strategy
- Overseeing technical aspects of implementation
- Liaising with investors and other stakeholders
- Overseeing tech hires

### Owlstone • Data Analyst

Feb 2015 - Sep 2015

- Analysed data from LuCID project
- Made visualisation software
- Invented new method for extracting noise & signal
- Trained in machine learning at Cavendish Lab, Cambridge

## OTHER WORK

### Enterprise

2017 - Now • NumeriCAM

- Ltd for performing consultancy work

2017 - 2018 • Arbivore

- Automated cryptocurrency arbitrage

2013 - 2017 • Physical Education Clothing

- Design & sale of college-branded clothing

### Contracts

1 week • Cambridge Multiphysics

- Web interface with authentication and backend logic

1 month • Double Precision Consultancy

- Compute resources on AWS and Rescale

2 months • Cambridge Cancer Genomics

- Backend infrastructure on AWS

4 months • Biotechspert

- Automated search, web scraping, data analysis, and ranking algorithms

3 months • Cambridge Numerical Solutions

- 3D visualisation software for detonation simulations

5 months • Owlstone

- Patient management and data manipulation software

### Placements

1 month • G Research

- Predicting order book movements with machine learning

2 months • Oxford Asset Management

- Analytical solutions & genetic algos for portfolio hedging

5 months • Inst of Bioinformatics & Applied Biotech

- New method to determine genetic distances between DNA sequences

2 months • Gulbenkian Science Inst

- Genetic population size simulators on large HPC platforms

2 months • Roxar

- New solution method for linear systems in oil reservoir simulation

## AWARDS

### Fitzwilliam College, Cambridge

- Leathersellers Scholarship
- Graduate Research Award
- Senior Scholarship
- ED Davies Scholarship
- Graduate Tutors Prize

### Dep. of Physics, Cambridge

- Full MPhil & PhD Funding

### Oxford University

- Undergrad Research Award

### Hertford College, Oxford

- Academic Scholarship
- College Prize
- College Book Prize
- De Unger Academic Fund

### Li & Fung Foundation

- Li & Fung Scholarship

### Bedford School

- Academic Scholarship
- Headmaster's Award
- Talalay Science Prize

## COURSES

### HPC Autumn Academy, 2015

Mathematics Institute, Cam.

### MPI & OpenMP, 2014

Advanced Research Computing, Ox.

## REVIEWING

### Journal of Computational Physics

Elsevier

### The Big Brain Revolution

Michelle Tempest

### Grant Reviewer

Czech Science Foundation

## OPEN-SOURCE SOFTWARE

### GitHub Gists: Python, Bash, YAML

[git.io/JvDVv](https://git.io/JvDVv) Useful scripts and IaC templates

### PyPDE: Python, C++

[pypde.rtfld.io](https://pypde.rtfld.io) Solve any system of hyperbolic/parabolic PDEs

### vscode-docker-ipython: JavaScript

[git.io/JvDVU](https://git.io/JvDVU) Develop interactively with IPython, running in a Docker container

### ADER: Python

[pypi.org/project/ADER](https://pypi.org/project/ADER) Solve any 1st-order hyperbolic system of PDEs

### Julia-WENO: Julia

[git.io/JvLIY](https://git.io/JvLIY) WENO reconstruction algorithm, of any order of accuracy

### Euler1D: C++

[git.io/JvDVW](https://git.io/JvDVW) 1st and 2nd order methods for solving 1D Euler equations

### GaussianDeconvolution: Python

[git.io/JvDV1](https://git.io/JvDV1) Separating overlapping, normally-distributed signals

### ProjectionMethod: C++

[git.io/JvDVM](https://git.io/JvDVM) Chorin's Projection Method

### NewtonKrylov: C++, Python

[git.io/JvDVD](https://git.io/JvDVD) Newton-Krylov algorithm

### LGMRES: C++, Python

[git.io/JvDVy](https://git.io/JvDVy) LGMRES algorithm

### LegendreGauss: C++

[git.io/JvDV7](https://git.io/JvDV7) Legendre-Gauss nodes and weights on  $[-1,1]$

### nwalign2: MATLAB

[git.io/JvDV5](https://git.io/JvDV5) nwalign modified to require linear (not quadratic) space

### seqpdist2: MATLAB

[git.io/JvDVF](https://git.io/JvDVF) Extended seqpdist

## PUBLICATIONS

A unified Eulerian framework for multimaterial continuum mechanics

Journal of Computational Physics, 2019

A numerical scheme for non-newtonian fluids and plastic solids [...]

Journal of Computational Physics, 2019

The Montecinos-Balsara ADER-FV polynomial basis [...]

Computers & Fluids, 2018

A fast numerical scheme for the GPR model of continuum mechanics

Journal of Computational Physics, 2017

On the eigenvalues of the ADER-WENO Galerkin predictor

Journal of Computational Physics, 2017

A two-level variant of additive Schwarz preconditioning [...]

arXiv, 2014