Hari Jackson

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A creative thinker and a fast learner
A mathematician by training, with the ability to turn theory into practice

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

gist.github.com/haranjackson
A collection of useful scripts and IaC templates (Python, Bash, YAML)

pypde.rtfd.io
A library for solving any system of hyperbolic/parabolic PDEs (Python, C++)

github.com/haranjackson/vscode-docker-ipython
A Visual Studio Code extension: Develop interactively with an IPython terminal, running from a locally-defined docker image (JavaScript)

pypi.org/project/ADER
The ADER method for solving any first-order hyperbolic system of PDEs (Python)

github.com/haranjackson/Julia-WENO
The WENO reconstruction algorithm, of any order of accuracy (Julia)

github.com/haranjackson/Euler1D
1st and 2nd order methods for solving the 1D Euler equations (C++)

github.com/haranjackson/GaussianDeconvolution
An algorithm for separating overlapping, normally-distributed signals (Python)

github.com/haranjackson/ProjectionMethod
Chorin's Project Method (C++)

github.com/haranjackson/NewtonKrylov
The Newton-Krylov algorithm (C++ with Python bindings)

github.com/haranjackson/LGMRES
The LGMRES algorithm (C++ with Python bindings)

github.com/haranjackson/LegendreGauss
Computes the Legendre-Gauss nodes and weights on [-1,1] (C++)

github.com/haranjackson/nwalign2
nwalign modified to require linear (rather than quadratic) space (MATLAB)

github.com/haranjackson/seqpdist2
An extension of seqpdist (MATLAB)

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