



# JADE<sup>2</sup>

Tier 2 HPC

Wes Armour  
JADE Day 2023  
29<sup>th</sup> September 2023



# Welcome!

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Quick introduction / update on JADE

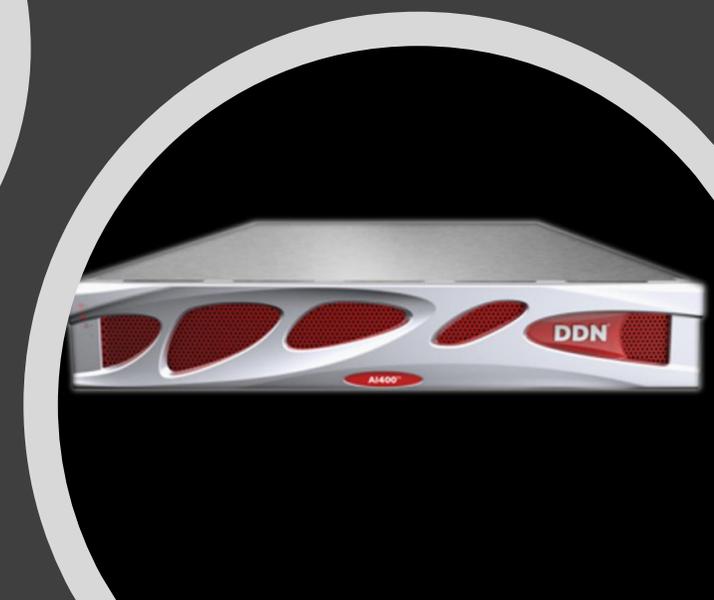
More about today...



# JADE 2

The Joint Academic Data Science Endeavour (JADE) is a national GPU facility dedicated to advancing world-leading research in machine learning and artificial intelligence research in the UK.

- 63x DGX V100 nodes (504 GPUs)
- DDN Ai400 flash storage (70TB)
- 1.1PB (Usable) spinning disk
- InfiniBand EDR
- Hosted by the Hartree Centre



# JADE 2 Consortium



JADE supports...

- World leading research groups across 20 UK universities.
- Over 500 active users.
- Providing over 3 million GPU/h to users every year.

*When JADE 2 entered service, it was listed as the 16<sup>th</sup> most energy efficient supercomputer in the world.*

**GREEN**



# JADE 2 Funding model

Different to other Tier-2 services, JADE 2 has a unique funding model.

The CapEx for the machine was provided by EPSRC.

20% of machine time is given to the Hartree Centre for them to use or sell to commercial users to cover costs of running the machine.

Provided a low barrier to entry for partners.

# JADE 2 Funding Continued...



Hartree Centre



Thanks to support from the Hartree Centre,  
NVIDIA, Atos and DDN

JADE will continue running until winter 2024\*

\* Subject to final signoff



# JADE 2 Operations

- Each partner provides local support (via RSE for example).
- Operations are overseen by a group formed from RSEs and Co-I's that meets monthly.
- Machine utilisation ranges month on month but typically ~85%
- The system has been available to users for >98% of total time since entering into service.
- Storage is becoming an issue ranging from 70% - 80% utilised.
- Do you have shared datasets we could store on AI400?

# JADE 2 Impact

- Training that the machine has been used for,
- Articles published that have used JADE time,
- EPSRC grants that the machine has supported.

# JADE 2 Impact

*Supported over 20 events / training courses*

*97 PhD students (likely to be more amongst the 500+ registered users – Let us know!).*

JADE 2 Impact

*65 articles published*  
*(Let us know when you publish!).*

# JADE 2 Impact

**Supporting 20 EPSRC  
funded grants having total  
value:**

**£68.2M\***

**(If your grant isn't listed  
let us know!)**

\* JADE 2 cost just 8% of this

EP/N031962/1	Synthetic Portabolomics: Leading the way at the crossroads of the Digital and the Bio Economies	£4,353,850
EP/M020576/1	CRITiCaL - Combatting cRiminals In The Cloud	£2,027,645
EP/P001009/1	SmartHeart: Next-generation cardiovascular healthcare via integrated image acquisition, reconstruction, analysis and learning	£5,253,733
EP/R010935/1	Advanced Real-time MR-Guided Radiofrequency Ablation of Cardiac Arrhythmias	£640,224
NS/A000049/1	Wellcome EPSRC Centre for Medical Engineering	£6,165,151
EP/S022104/1	EPSRC Centre for Doctoral Training in Smart Medical Imaging at King's College London and Imperial College London	£6,022,394
EP/W000091/1	In-Procedure Personalized Atrial Digital Twin to Predict Outcome of Atrial Fibrillation Ablation	£1,534,180
NS/A000027/1	Image-Guided Intrauterine Minimally Invasive Fetal Diagnosis and Therapy	£4,967,256
EP/S022937/1	UKRI Centre for Doctoral Training in Interactive Artificial Intelligence	£6,876,132
EP/T028572/1	Visual AI: An Open World Interpretable Visual Transformer	£5,912,096
EP/T004991/1	UMPIRE: United Model for the Perception of Interactions in visuoauditory REcognition	£1,001,838
EP/P006094/1	Brains on Board: Neuromorphic Control of Flying Robots	£4,816,675
EP/S030964/1	ActiveAI - active learning and selective attention for robust, transparent and efficient AI	£953,584
EP/V052241/1	Unlocking spiking neural networks for machine learning research	£834,721
EP/N007743/1	Face Matching for Automatic Identity Retrieval, Recognition, Verification and Management	£6,104,264
EP/T019751/1	AI for Sound	£2,120,275
EP/V038087/1	BBC Prosperity Partnership: Future Personalised Object-Based Media Experiences Delivered at Scale Anywhere	£3,003,243
EP/P022529/1	Audio-Visual Media Research Platform	£1,577,222
EP/T02450X/1	Modeling Idiomaticity in Human and Artificial Language Processing	£446,163
EP/L014998/1	EPSRC Centre for Doctoral Training in Embedded Intelligence	£3,597,484

# JADE Day Overview



**JADE**  
Tier 2 HPC

Home Programme ▾ Venue and More ▾ Bursaries Registration

## Welcome to JADE Day

Friday 29th September 2023

Worcester College, University of Oxford

**REGISTRATION OPEN**

**Already registered?**

### ABOUT JADE

JADE is a UK Tier-2 resource, funded by EPSRC, owned by University of Oxford and hosted at the Hartree Centre. The hardware was supplied and integrated by ATOS Bull.

A consortium of UK universities and The Alan Turing Institute, led by the University of Oxford, has been awarded £5 million by the Engineering and Physical Sciences Research Council (EPSRC) to continue the world leading research enabled by the Joint Academic Data science Endeavour (JADE) service. This forms part of a continued investment by EPSRC in the UK's regional Tier 2 high-performance computing facilities, which aim to bridge the gap between institutional and national resources. For more information see our website: [www.jade.ac.uk](http://www.jade.ac.uk)



Thank you to Lorjah Rajah (JADE Consortium Manager)  
for putting today together for us.

*Please do provide feedback*

# JADE Day Agenda

Registration begins	09:30 - 10:00
Tea, coffee, pastries	09:30 - 10:00
Welcome & Introduction - Wes Armour, PI of JADE	10:00 - 10:15
Hartree Speakers	10:15 - 10:40
Refreshment break	10:40 - 11:10
Marc Modat, Kings College London	11:10 - 11:35
Twin Karmakharm, Sheffield University	11:35 - 12:00
Lunch Break	12:00 - 13:00
Thomas Nowotny, Sussex University	13:00 - 13:25
Toby Perrett, Bristol University	13:25 - 13:50
Breakout Session	13:50 - 14:20
Breakout Session Summary	14:20 - 14:35
Refreshment break	14:35 - 15:10
NVIDIA - Adam Grzywaczewski	15:10 - 15:45
Closing Remarks	15:45 - 15:55
Drinks reception / Networking Session & Poster	
Winner Announcement	15:55 - 18:00

# JADE Day Breakout

One breakout session, 3 groups of about 25 people, two topics...

**JADE - the things you like the most, the things you like least, do you have any tips/tricks to share.**

**If we were given £1M, how should we change JADE?**

# JADE Day Poster Prizes

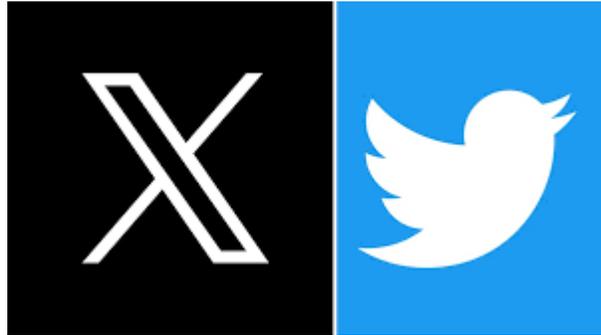


**1st Place - NVIDIA Mentoring**

**2nd Place - £100 Amazon voucher**

**3rd Place - £50 Amazon voucher**





[https://twitter.com/JADE2\\_HPC](https://twitter.com/JADE2_HPC)



<https://www.jade.ac.uk>

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