



UCL Department of Statistical Science  
and  
PA Consulting  
Hackathon 2025

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[paconsulting.com](http://paconsulting.com)

# James Shepherd PhD

Principal  
Consultant



- Technical Leadership
  - Java
  - Python
  - .NET
  - JavaScript
- DevOps
  - Infrastructure as Code
  - Cloud Solution Architecture
  - Continuous Integration/Delivery
- Clients include
  - UK Home Office
  - John Lewis
  - Sainsbury's
  - HSBC
  - NIHR
  - UK Met Office

# Hackathon Autumn 2025 Overview

- You will be given a brief
  - Who the client is
  - What they want
  - Why they want it
- You form teams of max 5 people
- You think of a good solution for the client
- You build some kind of demonstration of your solution
- You prepare a 5 minute talk to present to the client
- The judges will decide on a winning team that has met the brief the best

# Hackathon Autumn 2025 Schedule

Time	Description
9:30	Arrival
10:00	Introduction and Brief
10:30	Form Teams – Initial Ideas
11:00	Register your team name and start hacking!
14:00	Some Advice
14:15	Continue hacking!
15:30	5 min Presentations to the Client
16:45	Judging and Announcement of the Winners



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PA is a  
**people-first**  
company. They  
genuinely care.

## Life at PA

Our diverse teams of experts – strategists, innovators, designers, consultants, digital experts, scientists, engineers, and technologists – accelerate new growth innovations from concept, through design, development and to commercial success. And we revitalise organisations, building the leadership, systems, and processes to make transformation a reality. **We believe in the power of ingenuity to build a positive human future.**



- Building a positive human future means building a world that is safer, healthier, more equitable, prosperous, and sustainable.
- Working across the world as a united team, we're the only company with the range of expertise to deliver end-to-end innovation.
- We're different because we bring multi-disciplinary teams together to solve our clients problems - this drives our ingenuity.
- The PA Foundation and STEM education
- We invest in our graduates and early careers talent as potential leaders of the business

# PA in numbers

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We are

**4,000**

experts working from offices across the UK, US, Netherlands and Nordics.

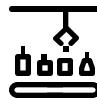
**18**

Offices across 17 cities and 3 regions

**23**

Capabilities across a wide range of technical areas

Working in global teams across **seven** sectors



Consumer and Manufacturing



Government and Public Services



Defence and Security



Health and Life Sciences



Energy and Utilities



Transport



Financial Services



# Programmes

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## Graduate

Our Graduate schemes vary in length depending on the area you have applied to, but are typically 18 months long where you can expect to promoted to Consultant Analyst

## Industrial Placement

We offer year long placements for those who require a year in industry as part of their degree. These run from July to July in your penultimate year of university. If you have a successful placement with us you have a chance of being offered a permanent graduate role ready for when you finish your studies

## Summer Internship

Some of our areas run 6-10 week summer internships. It's a great way to experience what it would be like to work at PA. If you have a successful internship with us you have a chance of being offered a permanent graduate role at the end ready for when you finish your studies

## Apprenticeships

Our apprenticeship opportunities will equip you with the core technical skills, knowledge, and behaviours needed for the development of innovative digital solutions. Through a blend of structured and self-directed learning, along with hands-on experience working on client and internal projects, you'll gain expertise in either data science or architecture engineering and DevOps. Upon successful completion of this three-year apprenticeship, you will gain a level 6 Bachelor's degree

# Routes

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At PA, you can carve out a unique and diverse career path with the support of your colleagues.

Natasha Nayee  
Human Insight Expert



## Consulting

Join the consulting team at PA, and become a pioneer of change, as we pull together to solve our clients' most complex challenges. As a graduate you will join an 18-month rotational scheme giving you exposure to 3x 6-month placements within our capabilities.

## Digital & Data

Our digital & data scheme is pushing boundaries as we deliver advanced solutions to prepare our clients for a bold future. Whether you're building a new digital sales channels, carrying out a shift to a cloud platform, or helping to protect an organisation from advanced cyber threats, you'll have the support of a diverse and experienced team beside you.

## Design, Engineering & Science

Explore a career in one of our design, engineering & science teams, and enter a world where innovation knows no bounds. Whether you're helping to design manufacturing and deliver thousands of ventilators to those who needed them during the fight against COVID-19, or prototyping an Electric Vehicle chargepoint, featured at COP26, you'll work together with a variety of experts to make a real difference.

# Our Digital & Data opportunities

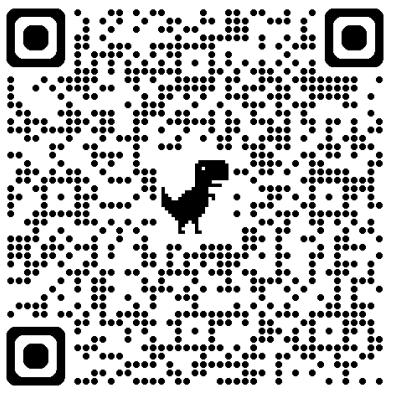
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## Graduate

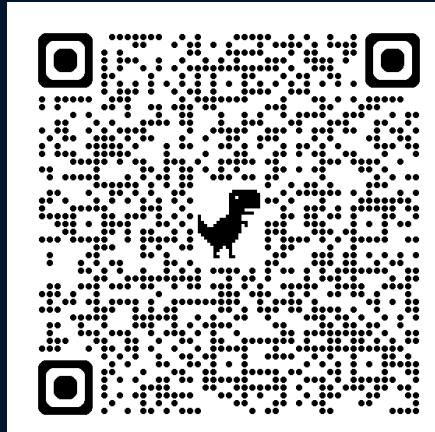
### Digital Trust and Cyber Security Graduate (London)

Join our cyber security team to help clients build digital trust, protect data, and recover from cyber-attacks. Gain broad experience across the information security spectrum, develop key skills, and contribute to secure, resilient businesses. Applicants from all degree backgrounds welcome but a passion for and deep understanding of cyber security is expected.

[https://jobs.smartrecruiters.com/  
PAConsulting/744000086780142-  
2026-graduate-digital-trust-cyber-  
security-analyst-london](https://jobs.smartrecruiters.com/PAConsulting/744000086780142-2026-graduate-digital-trust-cyber-security-analyst-london)



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kingdom&filterEmploymentTypes=  
&filterRoleTypes=early-careers](https://www.paconsulting.com/jobs?search=&filterLocations=united-kingdom&filterEmploymentTypes=&filterRoleTypes=early-careers)



## Industrial Placement

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Join our cyber security team to help clients build digital trust, protect data, and recover from cyber-attacks. Gain broad experience across the information security spectrum, develop key skills, and contribute to secure, resilient businesses. Applicants from all degree backgrounds are welcome but a passion for and deep understanding of cyber security is expected.

### Digital & Data (Manchester/Bristol)

Working within our digital and data function, you will get stuck into delivering some of the most advanced solutions for our clients. You'll have exposure on your placement to AI, data science/ engineering, strategy and design, and architecture and DevOps client projects. You'll need an undergraduate degree in any discipline that involves computer science, data science, or numeracy skills.

# Our Digital & Data opportunities (continued)

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## Summer Internship

### **Digital Trust and Cyber Security (London)**

As an Intern you will help our clients build trust with customers and stakeholders by showing systems are secure, protect data from cyber-attack and comply with regulations.

You will work alongside our cyber security experts to spot digital and technology security risks and help identify the right controls to develop systems, processes and culture to keep data safe. You will help our clients build the resilience they need to get back to business with minimum financial and reputational loss when a cyber-attack does succeed.

During your weeks as an intern at PA, you'll learn some of what it takes to be a top-notch consultant. You'll be coached and guided by experts and have opportunities to broaden your experience on a challenging project. Whatever you work on, you'll be part of the team and free to build your networks, both here at PA and far beyond.

## Apprenticeships

### **Digital Software Apprenticeship (London)**

Digital has changed businesses forever. Organisations that have embraced digital are leading their industry and influencing others – and those that haven't are falling behind. Joining us as an apprentice, you will work on an assortment of real-life client projects delivering innovative software solutions to our clients' most critical business needs.

### **Digital Software Apprenticeship (Belfast)**

As part of our Belfast apprenticeship opportunity, you will work alongside our consultants while studying towards a Computing Systems degree. You'll be coached and guided by experts and have countless opportunities to broaden your experience on challenging projects and programmes within our digital hub in Belfast.

### **Data Science Apprenticeship (London)**

Our Data Science Apprenticeship is a hands-on programme designed to launch your career in Data Science. You'll work on real client projects, develop skills in data analytics, cloud engineering, and machine learning, and earn a degree – all while being supported by experienced mentors and a collaborative team



# The Brief!

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# The Brief: *Z Climate Change*

- A climate crisis campaigning organisation called *Z Climate Change* is revamping their website
- They need an impactful demonstration of climate change
- It must be based on real data
- They like the idea of using statistics and/or machine learning to show the impact
- Your company is bidding for the work to create this website
- What would you do?
- Prepare your bid presentation and deliver it

# The Client's Proof of Concept (*Vibe Coding*)

- Z Climate Change have had a go at using AI to generate a demo
- This is just to show what is possible, your solution needs to be better!
- They asked ChatGPT to:
  - Use data from the following API:
    - [https://open-meteo.com/en/docs/climate-api?end\\_date=2024-12-31](https://open-meteo.com/en/docs/climate-api?end_date=2024-12-31)
  - Use an ARIMA model
  - Predict the next year's max temperature
  - Show the data and prediction in a graph
  - Do all of this in HTML and JavaScript
- <https://github.com/james-shepherd/UCL-hackathon-2025>



# Some Options

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The client wants something that demonstrates climate change in a webpage

You can use any data you think the client would agree with

You can use an API to get data and predict in the browser, like in the PoC

You can pre-compute data instead

You might want to have some interactivity

You might find it useful to use ChatGPT or another LLM

The end-user is a visitor to the website

The end-user is the person you must win over

Think User Experience (UX), what can you do to engage the visitor?

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# Q&A

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