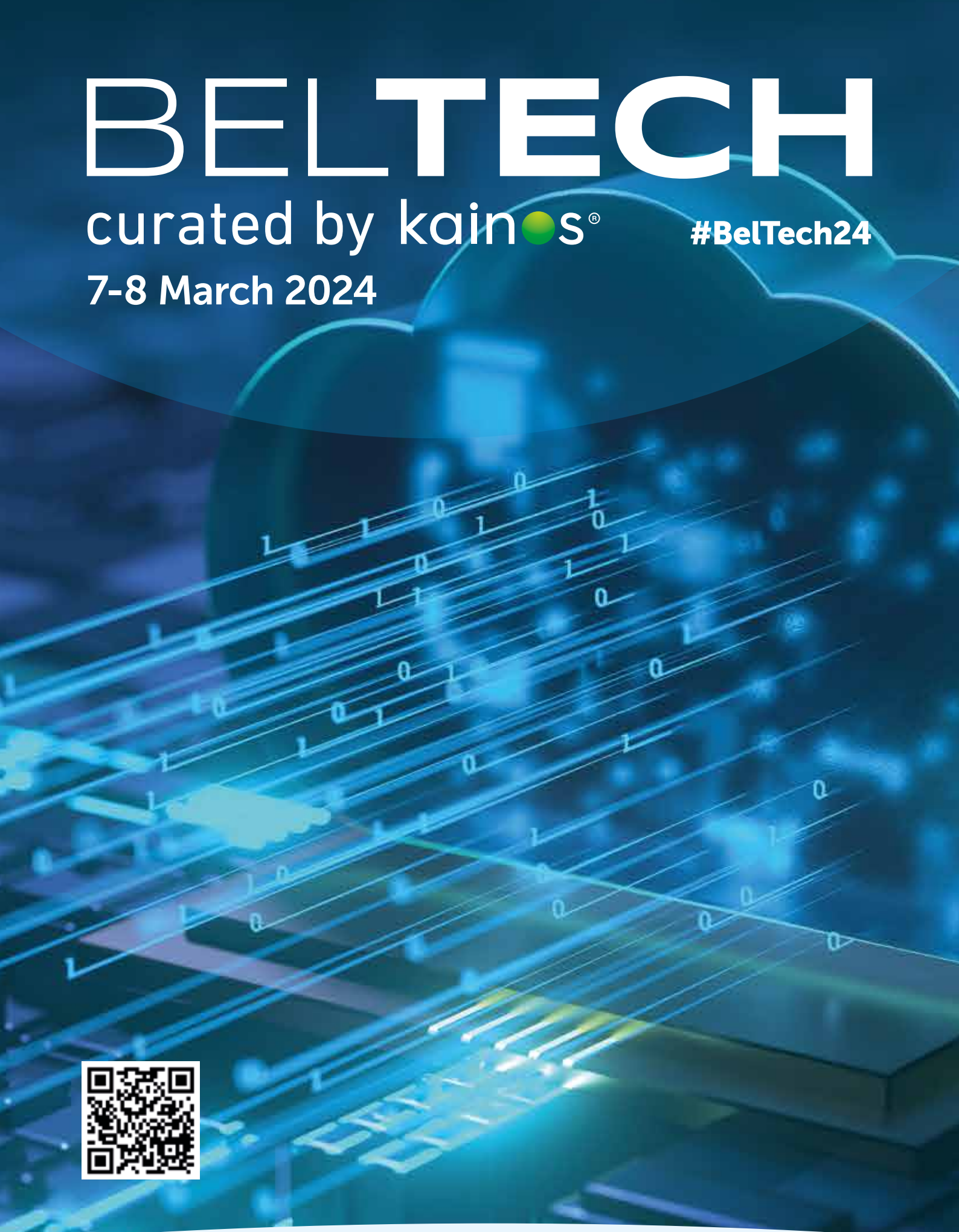
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Welcome

Sometimes it's hard to comprehend that we are now into our second decade of BelTech but, then again, the city's wealth of tech expertise was only ever going to keep growing: much like the influence of Generative AI.



This year's Generative AI Track - curated by Chloe McAree of Hamilton Robson - continues to keep the focus firmly on the big issues. From Gen AI's game-changing influence in software to the new frontiers being created in creativity and efficiency, the conversations and implications keep flowing and, as always, BelTech is here for it.

Panel discussions on *Gen AI and the Future of Interaction, Knowledge, and Personalisation* will align with addresses such as *Automating the Onerous with Gen AI* by Andy Morrison of Expleo, to interrogate all aspects of this now all-pervasive technology.

And our local technologists are honoured to be joined in the debate by some of Europe's leading practitioners including Aleksander Obuchowski, Head of AI at K2 AI in Gdansk, who will address the conference on the *Large-scale Deployment of Gen AI for Metadata Enrichment.*

He is joined by Marcin Pawlowski, Head of Quantum Cybersecurity and Communications Group at the University of Gdańsk who will discuss the *New Generation of Quantum Solutions for Cybersecurity*, whilst Wekoslav Stefanovski, Head of Department at Sourcico in North Macedonia will present us with *A Practitioner's Guide on How to Mess up JWTs.*

Of course, our contributors' vast knowledge cuts across our three tracks and the Developer Experience Track, curated by the Technical Lead at Allstate, Kevin Higgins and the Trust Architecture & Digital Identity Track, shaped by James Matchett at Kainos, provides that all-encompassing view unique to BelTech.

Speaking of that which is unique to BelTech, our very own Dragons' Den Competition again puts the spotlight on tech entrepreneurs. This year we have three female pitchers with game-changing tech startups which are revolutionizing AI, disrupting the app sphere, and engineering the future of tech.

And as ever, we continue to look to the future with one of the most crucial elements of BelTech, our EDU day which sees young people gathered together at the city's most exciting and empowering educational conference.

Many of the 14 to 18 year olds who attended our first EDU days are now firmly embedded in the Belfast tech sector, as are you all, the humans – who Gordon Flower from Expleo reminds us – who maintain the decision-making power behind the machines.

We extend the warmest of welcomes to all our contributors and attendees and to another decade of BelTech.

Connla McCann
Co-founder, BelTech

Generative AI a game-changer in software development

Síona O'Reilly, Solution Architect, Kainos





In recent years, the world of software engineering and architecture has witnessed a revolutionary transformation fuelled by advancements in Generative Artificial Intelligence (AI).

Generative AI, characterised by its ability to autonomously create content, has emerged as a game-changer in software development. Through techniques such as deep learning and neural networks, Generative AI has the capacity to generate code, assets, and even entire software architectures. This transformative capability not only accelerates the development process but also unlocks new levels of creativity and innovation. Our talented speakers will explore what engineers are doing to leverage these new capabilities and how the software development landscape has changed.

One of the most compelling aspects of Generative AI is its potential to enhance developer experience. By automating repetitive tasks and augmenting human creativity, Generative AI tools empower developers to focus their efforts on higher-level problem-solving and innovation. This shift not only streamlines development workflows but also fosters a more fulfilling and rewarding experience for software engineers and architects.

This change in development workflows has redefined the developer experience, making it more intuitive, efficient, and enjoyable. With tools that can automatically generate code snippets, identify patterns, and provide intelligent suggestions, developers can streamline their workflows and bring their ideas to life more effectively than ever before.

Moreover, the advent of these tools has opened access to software development, enabling individuals with diverse backgrounds and skill levels to participate. By abstracting complexity and lowering barriers to entry, Generative AI fosters a more inclusive and collaborative development environment, where creativity thrives and innovation flourishes. On our Developer Experience track, we will deep dive into the tools allowing developers to supercharge their productivity and focus their efforts on real, meaningful problem solving.

In addition to revolutionising developer experience, Generative AI has played a pivotal role in strengthening security standards across the software development lifecycle. Through techniques such as automated vulnerability detection, threat modeling, and code analysis, developers have been empowered to identify and mitigate security risks proactively.

Furthermore, we have seen the creation of sophisticated security mechanisms, such as anomaly detection and behavioral analysis, that can adapt to evolving threats in real-time. By leveraging the power of AI-driven security solutions, organisations can fortify their defenses and safeguard sensitive data against emerging cyber threats. Our security track will deep dive into best practices to secure software against cybersecurity threats.

As Uncle Ben once said to Peter Parker - "With great power comes great responsibility". With tooling as powerful as Generative AI, we need to be deliberate in how it is harnessed. Individuals using these tools to accelerate, but without the required experience and knowledge can cause huge damage. BelTech is a platform for unleashing the power of these tools in a controlled, outcomes focused fashion.

At BelTech, we look to the future of software engineering, where Generative AI stands poised to continue its transformative impact on developer experience and security. By embracing this groundbreaking technology and harnessing its potential, software engineers and architects can unlock new possibilities, drive innovation, and shape the digital landscape of tomorrow. I hope you leave the conference feeling inspired, having made connections with fellow technologists and with the encouragement to make your mark in the tech industry.

I'd like to take this opportunity to extend a massive thank you to our curation team, Chloe McAree of Hamilton Robson, Graeme Clarke of Expleo, James Matchett of Kainos and Kevin Higgins of Allstate, you have all been a dream to work with. They say, "it takes a village..." and this is definitely the case for BelTech, the team have worked tirelessly to shape the best event yet.

Organising an event of this quality and scale would simply not be possible without the generosity of our sponsors. They see the strength and innovation in the NI tech industry and understand the importance of events like BelTech to connect the technical community and inspire them to continue creating world class, innovative solutions. BelTech is incredibly grateful to Kainos, our programme partners, Allstate and Expleo, our event partners, Synechron, Options, Unosquare, Liberty IT, Belfast City Council and WWCode, and finally our partners of BelTech EDU, Vanrath and Danske Bank.

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Developer Experience in the age of AI

Kevin Higgins, Platform Consultant at Allstate





As the pace of technology evolution continues to increase, trying to stay up-to-date and relevant as a developer seems almost overwhelming. Luckily BelTech is here to help.

It has always been a crucial part of the job of a developer to keep pace with current trends. I remember my first batch of .NET/C# training at Allstate: for any Microsoft developers of a certain age you might remember the giant orange books that were received as part of each Microsoft course. They were a treasured reference guide in the brave new world of .NET and C#, I might be revealing my age here but Stack Overflow didn't even exist!

Fast forward to 2024 and the pace of change is staggering

Over the years vendors have continually introduced changes to help developers code faster and improve code quality. IDEs have evolved over time to introduce a myriad of features and plugins to help the developer, but I don't think I've ever seen such rapid change like the evolution of AI-powered productivity tools like GitHub Copilot and Amazon CodeWhisperer.

"Amazon ran a productivity challenge during the preview, and participants who used CodeWhisperer were 27% more likely to complete tasks successfully and did so an average of 57% faster than those who did not use CodeWhisperer." (Source: https://aws.amazon.com/codewhisperer/)

These are huge claims, but what does it mean for developers? What does AI-assisted software delivery look like, how do we measure these productivity gains and what impact can these LLMs have in the messy real world where we are dealing with large legacy code bases? It seemed fitting for us to explore Developer Experience as a main theme of BelTech 2024.

We're delighted to welcome Martin Woodward (Vice President of Developer Relations at GitHub) for a demo-packed session digging into all the latest features of GitHub Copilot. Martin was part of the original team that brought GitHub Copilot to the world in June 2021 and also shares his insider view on how GitHub Copilot works, so that you can better understand how to use AI to speed up your day-to-day coding life.

We can also look forward to hearing from Tiffany Souterre (Senior Developer Advocate Specialist in AI/ML at AWS) who joins us from Paris. Tiffany will explore the assertion that Generative AI is the next frontier of artificial intelligence and will demo how developers are using Amazon CodeWhisperer to help them supercharge their productivity.

Shane O'Hanlon, a DevOps Consultant at Synechron, will offer a local perspective and explore his view on these new developer tools: how they are going to change how we work today; what the future might look like; and how local firms are thinking of moving towards it.

With such a focus on developer experience and the desire for tech to move faster and deploy quicker, we are delighted to also have a talk from Colleen Walsh, Product Owner at Core Systems. Colleen works in the prison/justice sector and her talk will explore UX challenges in this area and the importance of solid customer requirements, for example, what would be the result of a bad UX outcome in a sector where everyone has low literacy.

Finally, we can look forward to an excellent panel discussion chaired by Kieran Gilmurray, featuring some awesome industry experts, which will examine these themes and explore associated challenges.

Thanks to everyone who applied for this track and to our fantastic presenters and panelists for sharing their knowledge and journeys with us. By the way, I still have my giant orange training books from Microsoft, although they now seem like a well-thumbed relic of the past.

Improving code productivity with Amazon CodeWhisperer

Tiffany Souterre, Senior Developer Advocate in AI/ML at AWS



How many years of experience does it take to code efficiently? How do you check that you have implemented the best practices in terms of security? How do you deal with legacy code that is missing documentation? If you are a developer, chances are you might have asked those questions before. Some of us found answers on Stack Overflow or other help forums, others might have asked help from a colleague. Context switching or peer programming can be time consuming. In this article, we will discover how Amazon CodeWhisperer can help developers be more productive using the power of generative AI. A study showed that developers who used CodeWhisperer were 27 per cent more likely to complete a task successfully and did so an average of 57 per cent faster than those who did not use it. Intrigued? Open your IDEs and let's go!

Generative AI is a type of artificial intelligence capable of generating new data such as text, code, images and videos. Amazon CodeWhisperer is specialized in code generation meaning that it can suggest blocks of code as you type in your IDE (Figure 1).



1 Figure1: Example of code suggestion

It can suggest code in Python, Java, JavaScript, TypeScript, C#, Go, Rust, PHP, Ruby, Kotlin, C, C++, Shell scripting, SQL, Scala, JSON, YAML, and HCL. It is compatible with VS Code and the JetBrains family of IDEs — including IntelliJ, PyCharm, GoLand, CLion, PhpStorm, RubyMine, Rider, WebStorm, DataGrip, and Visual Studio (preview). CodeWhisperer is also available for AWS Cloud9, the Lambda console, JupyterLab, and SageMaker Studio. Other than code generation, CodeWhisperer counts numerous features such as chat with Amazon Q, reference logs, security scans and command line support.

The expert assistant Amazon Q

Amazon Q is an AI powered assistant available in your IDE via CodeWhisperer that gives you guidance through a simple conversational interface. If you don't understand a piece of code, Amazon Q can explain in natural language what a piece of code is doing (Figure 2).



2. Amazon Q can explain code in natural language

It can also help you upgrade and migrate your Java application to the latest language version. Currently, Amazon Q can upgrade Java 8 and Java 11 code to Java 17 code.

Reference log

CodeWhisperer can flag or filter code suggestions that resemble publicly available code. As you type, the code suggested by CodeWhisperer might show you a reference flag. You can then choose to accept the suggestion or not. It also provides you the associated open-source project's repository URL and license so that you can more easily review them and add attribution (Figure 3). If you don't want to see any suggestions with a reference flag, you can set this preference in the parameters.



3 Example of reference log

Code security

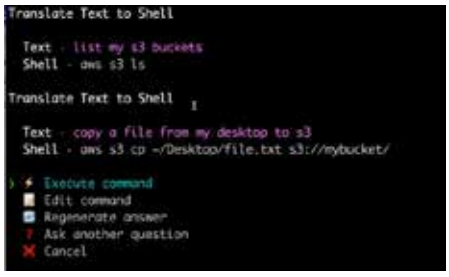
CodeWhisperer can also perform security scans. It has been trained on Amazon CodeGuru with all the best practices that comes along. It can scan your code to identify potential vulnerabilities and makes tailored suggestions to your code to help remediate the identified issues by simply clicking on the 'Apply fix' button (Figure 4).



4 Security scan

Command line support

One of the latest features of CodeWhisperer is the support for command line. You can now go to your terminal, type 'cw ai' and type, in natural language, what you would like to do and CodeWhisperer will be able to suggest you command lines to execute (Figure 5). This feature is currently compatible with macOs terminal, iTerm2 and the built-in-VS Code terminal.



5 Command line support

In short, CodeWhisperer has seen major improvements and new features since its launch in April 2023. From code generation to security scans, reference logs command line and chat with Amazon Q, there are several ways this tool can help you be more productive. Eager to try? Go to bit.ly/cw-beltech to learn more.

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Navigating the Generative AI landscape: A new frontier in creativity and efficiency

Chloe McAree, Senior Software Engineer, Hamilton Robson





Generative AI (GenAI) is a branch of artificial intelligence that focuses on the creation of new content, ideas, data, or solutions

It encompasses technologies and algorithms capable of producing text, images, music, code, and other forms of media. This innovative field is rapidly evolving, pushing the boundaries of what's possible with technology.

The expansion of GenAI over the last year has been fuelled by advancements in algorithms, increased computing power, and a surge in data availability. Breakthroughs in models like GPT and DALL·E, alongside more accessible and user-friendly tools, have made these technologies more understandable and appealing to a wider audience. This surge is not just a result of technological innovation but also the growing public and private sector investment, aiming to explore and harness the potential of AI for innovation and efficiency.

Moreover, the increased accessibility of AI tools has enabled a broader community to experiment with and implement generative AI solutions, fostering a culture of creativity and innovation across industries.

BelTech is excited to introduce a Generative AI track at this year's conference, featuring an impressive lineup of speakers. This track is dedicated to exploring the vast potential and transformative power of Generative AI in both professional and personal spheres. Our focus on GenAI is driven by its exponential growth and its potential to revolutionise creative processes, streamline decision-making, and introduce unprecedented levels of efficiency into our daily lives. GenAI represents a significant milestone in AI evolution, offering novel ways to interact with technology and fostering a future where creativity and innovation are limitless.

Our GenAI track aims to bring together thought leaders and pioneers to explore this rapidly expanding field.

Our carefully curated lineup includes sessions designed to enlighten, inspire, and provoke thoughtful discussion on various aspects of GenAI, such as:

- **From Code-bots to Soul-bots** - Dive into the art of creating dynamic, conversational NPCs with Jake Young, exploring how GenAI is crafting more immersive digital experiences.
- **LLMs: From Promise to Practical Value** - Jordan McDonald takes us through the evolution of Large Language Models with an engaging twist, illustrating their growing impact on problem-solving and creativity.
- **Large-scale Deployment of GenAI for Metadata Enrichment: a Tale of Yield and Caution** - Join Aleksander Obuchowski as he highlights AI's use in synopsis creation and metadata extraction, improving editorial workflows. Providing insights into pricing, copyright handling, GenAI's execution speed, and its impact on content production.
- **Automating the Onerous with GenAI** - Andy Morrison will take us through how GenAI is simplifying the complexities of daily tasks, from test automation to agile management, with insights into the personal journey of leveraging AI for efficiency and creativity.
- At BelTech, we recognize the importance of staying at the forefront of this shift. Our GenAI track is not just about showcasing the latest advancements but also about understanding how these technologies are being applied in real-world scenarios, fostering a culture of innovation and inclusivity.

Dragons' Den Competition: 7th March 2024

Hear three female entrepreneurs with game-changing tech startups pitch at BelTech's Dragons' Den Competition. They're revolutionizing AI, disrupting the app sphere, and engineering the future of tech, but who will take the prize?



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For more information, visit https://shareit-biz.mn.com

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2. Khaula Bhutta, Founder and CEO, Inclusive Law

Khaula Bhutta, a recent law graduate from Queen's University Belfast, is passionate about human rights and social justice. Her start-up Inclusive Law endeavours to connect legal professionals with vulnerable and marginalized communities, with the aim of humanizing and simplifying the process of accessing legal support. With a decade of experience working in the field of human rights, Khaula brings a wealth of knowledge and deep-rooted passion for addressing systemic issues. She has a LL.M in International Human Rights Law and Practice from the University of York and a B.A in Economics, Politics and Law from Dublin City University. Her passion for justice comes from her own lived experiences and academic journey. Khaula's work has allowed her to gain insights into the vulnerabilities experienced by clients as well as the challenges faced by legal professionals, emphasizing the need for holistic legal services. Inclusive Law aims to bring about the transformative change needed within the legal industry.

3. Maebh Reynolds, Co-Founder & CEO, Goplugable

GoPlugable is an "Airbnb for Private Electric Vehicle Chargers". Founded by Maebh Reynolds and Andrine Mendez, GoPlugable is on a mission to make EV charging more accessible, convenient and affordable for all. The marketplace platform allows EV home charger owners to rent out their EV chargers to other drivers in their community. GoPlugable can make passive revenue by helping a neighbour and "Chargees" can schedule and plan their charging sessions at a time and place that fits their charging needs in advance.

As the world moves towards sustainable mobility, GoPlugable ensures that those who cannot charge from home including those that live in apartments, rented accommodation or homes with no driveway can still have access to reliable, affordable charging. The team have been bootstrapping via grants, competitions and accelerator programmes and the app has recently gone live across the island of Ireland, supporting over 20 hosts and 200+ users.

GoPlugable are also working on a B2B charging solution to allow private businesses such as office spaces, community centres and hospitality businesses to also rent out their otherwise private chargers to strengthen their charging network, giving greater charging options to all.



Get creative, our AI isn't

Jake Young, Software Engineer, Hamilton Robinson



One day a film will be made and an AI writer will be credited. But it won't be without the help of humans far more talented than us.

People are required if we want to feel any connection to the things we build and create.

When AI is combined inside our workflows it can benefit people massively. GitHub Copilot and tools like it have changed how engineers work today. In a recent study, developers were able to write a HTTP server in JavaScript 55% faster using Github Copilot. The impact on every industry is multifaceted, enhancing creativity, streamlining production, and even challenging traditional roles.

We have reached a crossroads, and we need to figure out where AI fits into our lives and work. Artificial Intelligence isn't indispensable yet. Right now, we would be at a disadvantage to our peers without our smartphones, but the next generation will be at a disadvantage without their own AI. That is when those tools succeed; when they inevitably disappear into the background and people don't think twice about it.

The AI tools we create will assist in generating ideas, automating repetitive tasks, and providing new ways to approach creative work.

For instance, AI can build software, write blogs or news articles, compose music, and even generate video from just a sentence. Year on year we are pushing the boundaries beyond our own perception.

The creative spaces are where you want to watch for innovations, particularly game development. Delivering several large creative projects at Hamilton Robson has often given us more opportunities to find novel use cases where we can push the limit of certain technologies like AI.

Game development is seeing massive benefits in graphics, quality assurance and dynamic character development. Imagine games where the narrative is unique to every player, and they interact with virtual characters that can talk for hours in depth about the world they live in.

In film and video production, AI is used for editing, colour correction, and visual effects, significantly reducing the time and effort required for post-production.

Similarly, in music, AI can isolate vocals from noisy backgrounds, as demonstrated by The Beatles' use of AI in the release of their latest song Now and Then. The next big dance music producer will use AI in their sound, and it will be class.

But Artificial Intelligence is not perfect, it has flaws and therein lies the opportunity for more creative producers, writers, and engineers.

OpenAI's recent video model, Sora, is incredible at creating minute long videos from a sentence. The consistency of content throughout the video is the most impressive part, but despite its strengths, Sora still faces challenges in simulating complex physics.

Even more mainstream AI Language models like GPT all have their strengths and weaknesses. But as with any tool, we just need to learn how and when to use it.

AI may boost creativity but also raises fears of diminishing originality and the human element in art. However, similar concerns with smartphone cameras didn't end professional photography; skill and talent still matter.

Yes, the arrival of smartphone cameras may pale in comparison to the advent of useful AI but as with cameras we will see more people's potential unlock as these tools become readily available to the public.

Human creativity will not be replaced but rather augmented, creating new opportunities for creative professionals. It offers a wealth of benefits, from increased efficiency to new avenues for innovation but it also presents challenges that we must navigate as a society.

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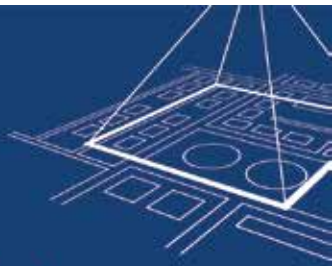
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Andy Morrison
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Heather Campbell
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Holly Toner
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Sharon Ross
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Quality Engineering,
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Limerick



Tiffany Souterre
Senior Developer
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Yasmine Rigby
Computer Science
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#BelTech24

The good, the bad, and the future of Generative AI

Holly Toner, Senior AI Engineer, Kainos





Generative AI has quickly wound its way into our daily lives.

Chances are, you've already encountered its impressive capabilities: brainstorming with ChatGPT, creating vibrant images with DALL-E for your presentations, or watching GitHub Co-pilot intuitively predict your next line of code. While it's been fun exploring these tools, it's time to dive deeper. Let's examine Generative AI's strengths and limitations and take a glimpse at what is on the horizon.

The good

At the heart of Generative AI's text creation capabilities are Large Language Models (LLMs). Trained on vast amounts of internet-sourced text data, these models are versatile and ready to tackle almost any task thrown at them. They are great at distilling huge texts into concise summaries, saving precious time. Their nuanced understanding of tone and context can help us to analyse sentiment and tweak our writing style to suit any scenario. In education, LLMs have transformed learning, offering on-the-spot explanations and feedback.

A notable trend in leveraging LLMs for software solutions is the concept of Retrieval Augmented Generation – or the 'bring your own data' approach. This strategy uses the power of LLMs to search documents and find the information you need quickly and easily. This technique applies to endless situations and settings.

In just over a year, Generative AI tools have not only caught the attention of tech enthusiasts but have rapidly gained mainstream popularity due to their usefulness and ease of access. To me, the standout feature of LLMs is their low (virtually no) barrier to entry. You don't need to learn a complex new interface to get the best out of them. You just need to ask a question to tap into their power.

The bad

Despite the remarkable advancements and widespread adoption, it's important to acknowledge the challenges and limitations that come along with Generative AI. One of the biggest issues with these tools is 'hallucinations' or the generation of misinformation where AI models sometimes produce plausible (but entirely fabricated) information. This raises serious concerns about the reliability of AI-generated content and the potential harm it could cause.

OpenAI saw an improvement in accuracy and a reduction in hallucinations when they upgraded from GPT-3.5 to GPT-4 last year. A key factor in the improvement was more data. This prompts a critical question: can we sustain bigger and bigger models to combat misinformation?

The short answer, in my opinion, is no. Spearheaded by the New York Times, we're seeing companies increasingly reluctant to allow their data to be harvested to train these models. This reflects a, growing concern for privacy and unauthorised use of proprietary information.
In a world of net-zero goals, we also can't overlook the hefty environmental impact of training models of this size.

The future

So, what does the future hold for Generative AI? I wouldn't say we are anywhere near the trough of disillusionment – but I do see a shift coming.

The era of tech giants hoarding data to fuel their generalised models could give way to more specialised, purpose-driven solutions. The emerging narrative is still one of 'bring your own data'. Now, couple this with models that offer deeper reasoning and are custom fit for particular applications. The result? Skyrocketing utility. That said, as we accelerate, we need to prioritise ethical considerations and advocate for comprehensive regulation to ensure the path forward balances utility with responsibility.

The untapped potential of Generative AI lies in personalisation and the broadening access to multimodal models. Imagine a world where image and video models become as ubiquitous and user-friendly as our co-pilots and coding assistants. This shift is setting the stage for AI applications that are not only more tailored and efficient, but also universally accessible – ensuring that the benefits of AI innovation are felt by everyone.

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What now for security with AI here to stay?

James Matchett, Lead Security Engineer, Kainos





Over the past year, our headlines have become dominated by the advent of one technology: Generative AI.

The technology itself is nothing new, in fact the first Markov statistical models were computed in the 1960s, the advent of GANs took hold in 2014, and the release of the superstar ChatGPT in late 2022. However, the technology has become much more refined since. Even worse for us security professionals, it has also become widely adopted in virtually all technology stacks.

We've all seen headlines of Generative AI, Large language models and more rudimentary chatbots 'going wrong' with consequences for the company utilising it. For example, Air Canada was recently defeated in court when its chat-bot was deemed at trial to be a legal representative for the company after it promised a non-existent discount to a customer, setting a precedent that if you hand part of your business across to AI, you are responsible for what it does.

We've even seen examples where an AI meal planner suggested a recipe for 'Aromatic Water Mix' (chlorine gas) when prompted with non-food items by a user, and who could forget the most recent use of Generative AI to oversell a children's chocolate-themed entertainment venue!

So how do these misuses of AI affect my role as a security engineer?

My mind harkens back to an IBM presentation from 1979 with the infamous quote "A computer can never be held accountable; therefore a computer must never make a management decision."

Organisations will naturally want to take advantage of this new technology and begin to put chatbots in a position where they will make privileged decisions such as whether to directly disclose personal information, make transactions, reset passwords or grant access to a restricted resource (as long as it believes the user is legitimate in their claims). From here, I believe that it's only a matter of time before one prompt injection attack, one data poisoning attack or one supply chain vulnerability translates into a critical incident for a company.

As of writing this, Klarna has announced that its AI assistant, powered by OpenAI, is already handling the job of 700 full-time customer service agents (approximately two-thirds of Klarna's customer service chats in a month).

A panel I will be chairing during the conference, 'AI is here to stay, now what?' will discuss the threats we are currently facing, questioning the amount of power we are giving AI, finding the best ways of educating technologists on safe methods of implementing AI into solutions and discussing the risks of malicious or adversarial AI.

We are already seeing professional bodies such as the NCSC and OWASP publishing articles, guidance and formal standards for the safe adoption of generative AI technologies. I highly recommend giving the OWASP top 10 for Large Language Models a read as a primer for the fantastic discussions in this space.

I'm really looking forward to welcoming all of our Trust Architecture and Digital Identity speakers. We'll be hearing fantastic talks on zero trust, quantum solutions for cybersecurity, collaboration between government, industry and academia and JWT authentication.

As a final thought, I still believe that with any technology (Gen-AI Included), good governance, monitoring and avoiding over-reliance on new, still not fully understood technologies will keep us in good stead. That is until someone has the brilliant idea to bring Skynet online.



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Decision-making power rests with the humans behind the machines

Gordon Flower, Solutions Director, Expleo





In today's rapidly advancing technological landscape, the buzz around artificial intelligence (AI) is louder than ever.

But as we stand at this crossroads, the question is, 'are we are truly prepared to integrate AI into our workflows?'. My recent explorations into AI, particularly through the use of Large Language Models (LLMs) and Copilot plugins, have thrust me into a realm of both fascination and scepticism.

Traditionally, when faced with a technical challenge or a need for innovation, my strategy involved a deep dive into the vast expanse of the internet. From scrolling through endless Stack Overflow threads to dissecting opinions on forum threads, the goal was always to gather a spectrum of viewpoints. This approach wasn't just about collecting data: it was about engaging with the community, challenging my own assumptions, and piecing together a more comprehensive understanding of the problem at hand.

This method of seeking diverse opinions has always been a cornerstone of my problem-solving process. The value in this diversity lies not in finding consensus but in the conversations and ideas it sparks. Every challenging viewpoint or alternative suggestion is an opportunity to refine my understanding and approach. It's a testament to the importance of critical thinking - weighing every piece of information, considering its relevance, and deciding how it fits into the larger puzzle I'm trying to solve.

As I began to incorporate AI into my toolkit, I found myself applying the same rigorous standards to the outputs of these systems. AI, with its ability to process and generate information at an unprecedented scale, presents a new world of possibilities. But as the old adage goes, with great power comes great responsibility. The question of trust in AI is a significant one. How do we validate the suggestions and solutions provided by an AI system? How do we ensure that the AI's conclusions are sound and applicable to the specific nuances of our projects?

My journey has taught me that while AI can be an incredibly powerful tool, it is not infallible. Just like any other source of information, its outputs need to be critically evaluated. This means not just taking AI recommendations at face value but scrutinizing them with the same level of scepticism and care I would apply to advice from a human. It's about sifting through the AI-generated insights, comparing them with established knowledge, and consulting with trusted colleagues or mentors when necessary.

In this process, I've come to view AI as a valuable addition to my resource arsenal, rather than a replacement for traditional research methods or human interaction. The integration of AI into my work has been a journey of learning how to balance its strengths with its limitations. I am not fully ready to place my trust in AI without reservation, but I recognize its potential to accelerate my work, offering new insights and freeing up time for more complex tasks.

Ultimately, the decision-making power rests with us, the humans behind the machines. AI can suggest, assist and inspire but the responsibility for the final outcome lies squarely on our shoulders. Embracing AI means embracing a continuous cycle of learning, adapting, and critically engaging with the technology we use.

For full disclosure, these are my views and opinions, taking into consideration many conversations with people I have had over the years, with some internet research thrown in as well as a conversation with ChatGPT, spell checking and word suggestions from Copilot in Office 365. And a final review by real people, who may or may not have used AI in their review process.

Schedule Day 1: Thursday 7th March

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08:30 AM	**Registration. Tea & Coffee**
09:00 AM	**Welcome** Síona O'Reilly, Solutions Architect, Kainos
09:05 AM	**Official Opening** Cllr Ryan Murphy, Lord Mayor of Belfast
09:10 AM	**We do it not because it is easy, but because we thought it would be easy: Reflections on Developing the University of Limerick's Immersive Software Engineering Degree.** Stephen Kinsella, Professor of Economics at the University of Limerick
09:35 AM	**Introduction to Generative AI Track** Chloe McAree, Senior Software Engineer, Hamilton Robson
09:40 AM	**From Code-bots to Soul-bots** Jake Young, Software Engineer, Hamilton Robson
10:00 AM	**LLMs: From Promise to Practical Value** Jordan McDonald, Data Science Lead, Analytics Engines
10:20 AM	**Large-scale Deployment of GenAI for Metadata Enrichment – a Tale of Yield and Caution** Aleksander Obuchowski, Head of AI at K2 AI, Gdansk
10:40 AM	**Automating the Onerous with GenAI** Andy Morrison, Head of Quality Engineering, Expleo Group
11:00 AM	**Break - Olympic Suite & Britannic Suite**
11:15 AM	**GenAI and the Future of Interaction, Knowledge, and Personalisation** *Chair:* Holly Toner, Senior AI Engineer, Kainos Sharon Ross, Technical Engineer in Quality Engineering, Expleo Kyle Davidson, Engineering Lead, Hamilton Robson Louise Doyle, Founder & CEO of Needi
11:40 AM	**Introduction to Developer Experience Track** Kevin Higgins, Technical Lead, Allstate
11:45 PM	**Github Co-pilot Deep Dive** Martin Woodward, Vice President, Github
12:05 PM	**Powering Developer Productivity with AI** Tiffany Souterre, Senior Developer Advocate in AI/ML, AWS, Paris
12:25 PM	**Developer Experience in the Age of Generative AI** Shane O'Hanlon, Synechron
12:40 PM	**Free People VS the Imprisoned; UX Challenges and Responding to Needs** Colleen Walsh, Product Owner, Core Systems

Schedule Day 1: Thursday 7th March

1:00 PM **Developer Experience Panel Discussion**
Chair: Kieran Gilmurray, CEO, Digital Automation and Robotics Ltd
Adam Hale, Full Stack Engineer, Allstate NI
Kieran Northime, VP Software Development, Options IT
Heather Campbell, Head of Technology for Low Code, Kainos
Karen McAuley, Solutions Engineer, Liberty IT

1:30 PM **Lunch - Olympic Suite & Britannic Suite**

2:10 PM **BelTech Dragons' Den Live Pitch Competition**
Emcee: John Ferris, Ulster Bank
Dragons: Alison Coote, Head of Product and Innovation, Kainos
Seamus Cushley, Leader|Coach|Technologist
Adrienne Hanna, Founder & CEO, Right Revenue
Startups: Grainne Bannon, CEO & Founder of Shareit biz
Khaula Bhutta, Founder and CEO, Inclusive Law
Maebh Reynolds, Co-Founder, CEO of Goplugable

2:30 PM **Introduction to Trust Architecture & Digital Identity Track**
James Matchett, Lead Security Engineer, Kainos

2:35 PM **A Primer on Zero Trust**
Jing Xu, Senior Security Architect, Kainos

2:50 PM **New Generation of Quantum Solutions for Cybersecurity**
Marcin Pawlowski, Head of Quantum Cybersecurity and Communications Group, International Centre for Theory of Quantum Technologies, University of Gdańsk

3:10 PM **From Secure Foundations to Resilient Futures: The UK as a leader in the design of resilient systems**
Nuala Kilmartin, Innovation Lead on Digital Security, UK Research and Innovation

3:30 PM **How to Mess up JWTs: A Practioner's Guide**
Wekoslav Stefanovski, Head of Department, Sourcico, North Macedonia

3:50 PM **AI is here to Stay, Now What?**
Chair: James Matchett, Lead Security Engineer, Kainos
David Cutting, Senior Lecturer, Queen's University Belfast
Claire Burn, Security Data Engineer, Elastic
Michael Coughlan, Lead Enterprise Architect, Elastic
Jamie McGurk, Principal Consultant, Synechron

4:15 PM **Break (Beer/Snacks)**

4:30 PM **Emotional Intelligence is greater than Artificial Intelligence**
Ciaran May, Founder of Natural Resilience

4:45 PM **Web3 API Authentication**
Robbie Daniels, Co-founder, Dhali
David Simmons, Co-founder, Dhali

5:00 PM **Announce Dragons' Den Winner**

5:05 PM **CLOSE**



In this edition, we spotlight Taming the Machine, an actionable read on navigating the AI revolution with caution and foresight.



Amidst the dazzle of AI's potential, this book provides a guide to in wielding its power in a more safe and ethical manner. With expert advice on data protection, ethical AI leadership, and cybersecurity, author Nell Watson offers a deep dive into the challenges AI poses to societal values and human dignity. Essential for anyone involved in technology, policy, or business, Taming the Machine charts a path towards a future where AI amplifies human strengths without compromising our core values.

Schedule Day 2: Friday 8th March

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10:00 AM **Welcome**
Danielle Keenan, Social Responsibility Manager, Kainos

10:05 AM **Official Opening**
Paul Givan MLA, Minister for Education

10:15 AM **Making Patient Specific Surgery Real: AI, 3D and People Power**
Rory Hanratty, Chief Technical Officer, Axial 3D

10:35 AM **Solving Crime with Computer Vision**
Alison Coote, Head of Product Innovation for Public Saftey and National Security, Kainos

10:55 AM **Trust is Earned: Media in the age of AI**
Antonia Kerle, Chief Technical Advisor, BBC R&D

11:15 AM **Panel discussion - AI: The Good, the Bad, and the Ethical**
Theme: AI Panel Discussion
Chair: Chloe McAree, Senior Software Engineer, Hamilton Robson
Alison Coote, Head of Product and Innovation for Public Safety and National Security, Kainos
Rory Hanratty, Chief Technology Officer, Axial3D
Antonia Kerle, Chief Technical Advisor, BBC R&D

11:45 AM **Lunch**

12:40 PM **Interactive Activity**

1:10 PM **Digital Sustainability: The Environmental Impact of Software**
Joe McGrath, Cloud Economist, Kainos

1:30 PM **The Future of Tech Careers: Opportunities and Challenges**
Theme: Career Panel
Chair: Chloe McAree, Senior Software Engineer, Hamilton Robson
Yasmine Rigby, Computer Science Student, Women Who Code
Hugh Kirk, Governance Risk & Compliance Director, Allstate
Matt Evers, Head of IT Recruitment, VANRATH
Jack McCullough, Software Engineer, Microsoft

2:00 PM **ENDS**



Tech enthusiasts ready for BelTech EDU's 11th edition

Gemma Breslin, Senior Outreach and Engagement Associate, Kainos





Join us as we celebrate the 11th edition of BelTech EDU, an exciting and empowering educational conference for young people aged 14-18 in Northern Ireland.

This year, BelTech EDU focuses on the key theme of Artificial Intelligence (AI). The conference aims to give students an immersive experience, diving deep into the world of AI and covering a wide range of topics. From exploring its impact on the creative arts industry, to discussing healthcare advancements (and more), BelTech EDU promises a day filled with inspiration and innovation for all-things tech. We'll examine AI across various sectors – with captivating live demos, insightful talks, interactive Q&A sessions, and career panels with industry experts.

With an incredible line-up of guest speakers, this year's conference promises to be nothing short of extraordinary. We're delighted to welcome Rory Hanratty, Chief Technology Officer of Axial3D, as our keynote speaker. Rory will discuss the transformative possibilities of personalised healthcare solutions, exploring how technology (exemplified by Axial3D) is shaping modern healthcare practices. With a commitment to making patient-specific care an everyday reality, Axial3D leads the way in advancing personalised healthcare. Sharing insights on Axial3D's global collaborations with surgeons, radiologists and engineers, Rory will showcase the innovative software and expert service that deliver cutting-edge 3D solutions.

Joining the exceptional line-up is Alison Coote, Product Consultant at Kainos. Alison will share her expertise and insights on a groundbreaking AI project, Assessing the pivotal role of AI technology within crime. Alison will explore how her team contributed to identifying criminals and missing persons through facial and body recognition. This exploration into the fusion of technology and law enforcement promises to reveal how AI has the potential to transform community engagement, streamline time management and optimise resources – particularly within the complexities of investigative procedures.

Antonia Kerle, Chief Technical Advisor at the BBC, will also take to the BelTech EDU stage offering a thrilling investigation into the ways in which AI is transforming the media landscape. Antonia's expertise will shed light on the dynamic intersection of artificial intelligence and media, providing a glimpse into the innovative steps the BBC is taking to shape the future of media technology. Here, we'll unravel real-world examples of AI applications within the media industry – including safeguarding trusted media, verifying video content, and employing location-tracing through AI technologies.

Honing in on digital sustainability, BelTech EDU will feature an insightful Green Software session - led by Joe McGrath (Cloud Economist at Kainos). Joe will analyse the vital role software plays in shaping environmental responsibility, and how it steers us towards a more responsible and green digital landscape. Through addressing the pressing issue of digital sustainability, we'll spotlight the often-overlooked environmental impact of software. As an expert in the field, Joe will offer important insights into the key role the technology industry plays in shaping a more sustainable future.

During our career panel session, students and teachers can join us on a journey into the diverse and dynamic world of tech careers – discovering new possibilities and opportunities. This interactive session will feature tech professionals from various roles (including a computer science student, a cybersecurity expert, a software engineer and an IT recruitment expert). The panel will share their unique stories of entering the tech industry and will give the young audience a chance to explore the broad spectrum of roles available. Don't miss the opportunity to gain insights, ask questions and discover the multitude of exciting paths awaiting you in the emerging tech landscape!

In addition to the wealth of knowledge shared, students can look forward to engaging in fun, collaborative activities throughout the day with the chance to win some exciting prizes.

BelTech EDU stands as a springboard to success for students, offering valuable insights and tips to kickstart careers in technology. Beyond education, the conference is a celebration of learning and technological innovation that nurtures the next generation of industry leaders. Coupling expert guidance with hands-on activities, BelTech EDU fosters an environment where students can not only learn, but actively engage in shaping their future in technology.

At BelTech EDU, every moment is an opportunity to grow, discover and connect with the evolving world of tech innovation.

How to succeed in today's tech world

Neill Ferguson, Senior IT Recruitment Consultant, VANRATH





In today's rapidly evolving market, careers in technology are not just in demand, they're essential for driving innovation and progress.

For students interested in pursuing a career in tech, there are numerous pathways to explore. However, navigating this in-demand field requires guidance, skills development, and staying informed about current trends.

Education and training play a fundamental role in preparing for a career in tech and the pathways for entering the tech industry, which include traditional university degrees, college programmes, apprenticeships and self-taught skills.

Educational routes

Obtaining a relevant degree in fields such as Computer Science, Statistics, Mathematics, or Data Science provides a solid foundation and is the most obvious route into a career in tech. Universities such as Queen's University, Ulster University, and Open University offer specialised programmes tailored to the needs of the tech industry, equipping students with the necessary skills and knowledge to secure their first tech opportunity.

Certifications can further enhance any educational achievements and demonstrate specialised knowledge in specific areas of interest. Showing specialist knowledge within a particular domain in the tech field can help individuals focus their career path and stand out in the job market.

Training opportunities

While formal education can be crucial for some job opportunities, gaining practical experience can also be extremely valuable. Apprenticeships and entry-level positions offer opportunities to get invaluable hands-on experience. Keep a check online as large software companies throughout Northern Ireland offer apprenticeship schemes available to young people, most launching at the start of each new year.

Developing your tech skills

Most employers hiring for tech employees will ask for a basic understanding of certain programming languages so developing technical skills in the latest languages is essential for success in tech roles, for example, if the goal is to become a Backend Software Engineer, consider developing skills in C# or Java as they are currently the most commonly used languages in software engineering in Northern Ireland.

While developing tech skills, it's advisable to work on personal projects and add these to a portfolio - a great way to show off abilities to potential employers. Be sure to detail the thought process as this will demonstrate understanding and is a great way to highlight skillsets.

Networking

Network with professionals and stay up to date on the latest industry trends. Get on LinkedIn, start connecting with tech experts, show off some tech knowledge, and become part of the conversation. Our minds are amazing because there is no limit to how much we can learn or how knowledgeable we can become on certain subjects, so ensure continuous learning – it's vital to having a successful tech career. These are great ways to not only build upon tech knowledge, but work upon soft skills such as communication, negotiation, and organisation - essential skills to have in tech.

Make sure you are properly prepared for any interviews

One of the biggest challenges faced by anyone taking their first steps into the technology field is standing out from their peers. Imagine for a moment you're a hiring manager, meeting dozens of potential candidates for each role, it's important to stand out and be memorable for the right reasons. The best strategy for this is taking a proactive approach and engage with a specialist recruiter.

Specialist recruiters can help in a number of ways, most critically in steering you towards opportunities that best match your long-term ambitions and preparing you for the process, giving you the best possible chance of success. Interviewing is a skill and like all skills it can be learned. Having someone on your side who guides people through interview processes every day is a great way to hone this skill.

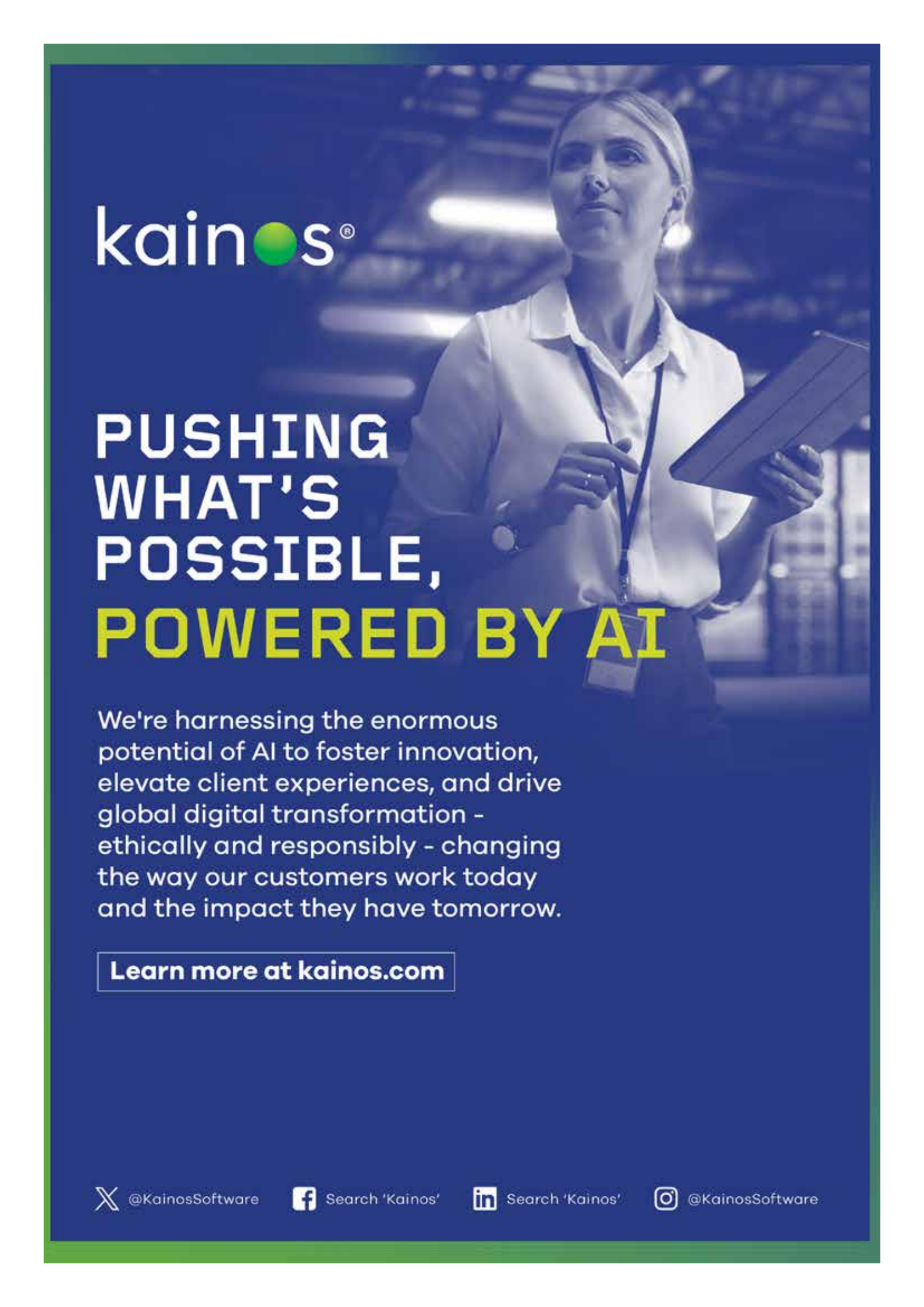
The work you do in the days leading up to an interview will be the difference between success and failure so use your time well. Knowing the format and what subjects are likely to come up will allow you to revise the appropriate topics; being able to utilise soft skills, build rapport and keep a conversation flowing as well as structuring your responses in a clean and logical manner are also important. Done well, it leaves interviewers with a strong impression and gives you the best possible chance of securing the right role for you.

Current trends

Some areas to keep an eye on in the coming years are AI and Cybersecurity. Cybersecurity is of paramount importance and with threats looming large, businesses must adapt to safeguard their data and ensure operational resilience. We also have the rise of generative AI which presents both opportunities and challenges for businesses, requiring them to address legal and ethical considerations while leveraging AI's potential to drive digital transformation – so if the opportunity presents itself to learn more about either of these areas, DO IT!

Certain tech roles are expected to be in high demand in 2024 and beyond, including Software Engineers, Data Scientists, Cloud Engineers, and IT Support Specialists. As technology continues to evolve, staying adaptable and embracing continuous learning will be key to thriving in the ever-changing tech industry.

Pursuing a career in tech offers a world of possibilities for young people. By investing in education, gaining practical experience, and honing relevant skills, individuals can position themselves for success in this dynamic and rewarding field.


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