TECH TALK

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Pioneering Tech Leadership with a Legacy of Excellence.

AIM

Galaxy Office Automation Pvt. Ltd.

GenAI
Frictionless AI
ROI-focused
Industrywide
COE
Tech Leader
36 Years+

Foreword

As the AI landscape continues to evolve, the promise of Generative AI (GenAI) and Frictionless AI is reshaping the way businesses operate, innovate, and grow. These technologies not only enhance the creative and analytical capabilities of organisations but also pave the way for smoother, more intuitive interactions between systems and users, driving efficiency and business value at every touchpoint.

Galaxy Office Automation Pvt. Ltd, with over 36 years of expertise in delivering IT infrastructure solutions, stands at the forefront of this transformative wave. Our tailored approach to AI, spanning infrastructure, platforms, and services, ensures that organisations of all sizes can leverage cutting-edge AI technology, regardless of industry or budget. With a deep understanding of digital transformation, Galaxy is uniquely positioned to deploy GenAI and Frictionless AI use cases across various sectors, enabling businesses to unlock new levels of productivity and innovation with ease.

Empowered with advanced AI capabilities, Galaxy is ready to help enterprises navigate the complexities of AI deployment, ensuring a seamless, scalable, and impactful integration into their operational ecosystem.

Anoop Pai Dhungat
Chairman & Managing Director

ET Now AI Summit Report

Galaxy recently participated in the ET Now AI Summit, held at the Sahara Star in Mumbai on September 27, 2024. The summit focused on "Exploring AI's Role in Customer Experience" and provided a dynamic platform for industry leaders, experts, and innovators to delve further into the potential of AI. As a sponsored partner alongside Dell Technologies, our presence at the summit underscored our commitment to unlocking new opportunities and maximising returns for our clients with frictionless AI solutions.

At our dedicated booth, we showcased our comprehensive AI capabilities, engaging attendees with interactive demonstrations and insightful discussions. Our "Lucky Draw" competition further amplified engagement, generating excitement and fostering connections with potential clients.

Our very own Non-Executive Director, Joergen Jakobsen, delivered a compelling keynote address in the main hall. He shared Galaxy's legacy of excellence and innovation, emphasising our commitment to empowering businesses on their AI journey by delivering frictionless AI with an ROI edge. Highlighting insights from our AI Readiness Survey with participation from around 100 companies, Joergen positioned Galaxy as a trusted partner for support.

Galaxy's expertise was further highlighted during the roundtable discussion on "AI in Customer Experience". Bhavesh Chauhan, VP - Technology and GenAI Practice Leader, and Sanjay Patodia, CEO, shared their insights, joining other esteemed speakers and leaders from industry-leading companies.

Bhavesh Chauhan also participated in a panel discussion on "AI and Localization Reality," alongside other AI experts and industry leaders. The panel explored the practical applications and challenges of implementing AI solutions in diverse business environments, emphasising the importance of customisation.

The summit provided an invaluable opportunity for us to connect with key decision-makers and foster strategic relationships. Our team engaged in 1-on-1 meetings with representatives from various sectors. These meetings facilitated meaningful conversations about leveraging AI to address specific business challenges and unlock growth opportunities.

Our participation in the ET Now AI Summit reinforced our position as a leading provider of frictionless AI solutions. We look forward to continuing our engagement with other industry leaders and participating in future events that drive innovation and collaboration.
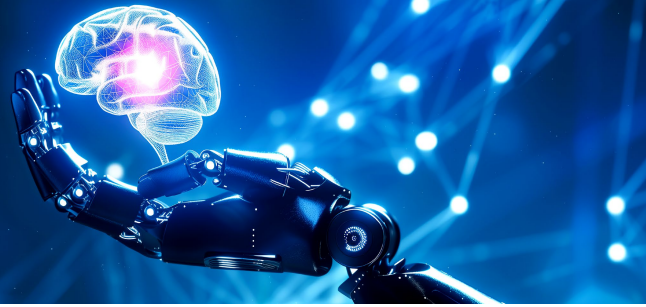
The World's First
Battery-powered Planes
Have Landed

The future of human flight arrived quietly at a time when no one was clocking up air miles. It was June 2020 and the skies were unusually empty as the world reeled at the speed of the COVID-19 outbreak. But down on the ground, something pretty huge was happening with a very small aircraft.

EASA, the European Union Aviation Safety Agency, certified a two-seater plane made in Slovenia as safe to fly. Within a few years, it was certified by equivalent bodies in the UK, the US, and elsewhere. The Pipistrel Velis Electro became the first fully certified electric aircraft in the world. It's still the only one.

"The achievement represents a growing interest and trust in the reliability of electric aircraft," says Dr Tine Tomažič, director of engineering and programmes at Pipistrel. "We recently completed production of our 100th Velis Electro, marking a significant milestone for Pipistrel and the industry."

The future is already here, says Tomažič, but to borrow a line from sci-fi author William Gibson, "it's far from evenly distributed". Despite a growing number of cleaner aircraft in development, there remains big questions about the alternative fuels required to fly them, and more still about the political will to make it all happen.

Climate Impact

"Right now, aviation isn't a major contributor to climate change," says Dr. Guy Gratton, somewhat unexpectedly. Gratton is associate professor of aviation and the environment at Cranfield University in the UK. An aeronautical engineer by trade, he's also a test pilot who flies experimental electric aircraft – in other words, he knows what he's talking about.

"Aviation is generating around two and a half per cent of global carbon, which is small, particularly when you consider its importance to the global economy," Gratton says. "There is science which is suggesting that the contribution through contrails may be rather worse than that, so it's perhaps up to around seven per cent."

"The industry is improving its emissions by roughly two per cent per passenger mile per year", Gratton says. But it's also growing by five per cent a year. The global demand for air transport is estimated to double by 2040, which means that while other industries are showing meaningful signs of decarbonising in the face of the climate crisis, aviation is on track to increase its total emissions and, in the process, become one of the world's worst polluters. "In order for us to continue to keep the massive social and economic benefits aviation brings the world, we need to fix that and stop aviation from becoming a majority polluter in the future," Gratton says. "Now, how can we do that?"

Small Steps

The Velis Electro is leading the way, but the first electric planes aren't designed to replace large passenger aircraft. The majority don't have the range to cross the English Channel, never mind the Atlantic. Instead, these pioneer aircrafts are built for short flights.

The Velis Electro is designed specifically for flight training, offering 50 minutes of flight time with 20 minutes reserve and a range of 100 nautical miles (185km). It's powered by a 58kW electric motor with two lightweight lithium batteries, which are game changers.

The problem with traditional batteries is that they're either too heavy or too hot (or both) to be safe or practical for an aircraft. Pipistrel's system, however, makes the whole powertrain safe, light, and efficient.

"The powertrain is entirely liquid-cooled," says Tomažič. "It has demonstrated levels of safety equivalent to, or higher than, conventionally powered aircraft." The battery weighs 70kg (154lbs) and the whole aircraft weighs just 425kg (936lbs) when empty. But if the underlying technology is revolutionary, the cockpit is familiar, and the controls are similar to conventional aircraft of the same size.

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Identity Matters
Navigating the IAM Landscape

Identity and Access Management (IAM), sometimes referred to as Identity, Directory, and Access Management (IDAM), is a framework of policies, technologies, and processes that help organisations manage digital identities and regulate user access to critical information and systems. IDAM solutions enable the right individuals to access the right resources at the right times for the right reasons. This is crucial for maintaining security, regulatory compliance, and operational efficiency.

Key Components of IDAM Solutions

Identity Management:
- Centralizes user identities and profiles
- Facilitates creation, management, and deletion of user accounts
- Synchronizes identities across multiple systems

Access Management:
- Controls which resources users can access, based on roles and permissions
- Manages authentication (e.g., passwords, biometrics, two-factor authentication)
- Enforces policies for how users access resources

Directory Services:
- Provides a centralized directory to store and manage user information
- Acts as a backbone for the authentication and authorization processes

Single Sign-On (SSO):
- Allows users to authenticate once and gain access to multiple systems without needing to log in separately for each

Multi-Factor Authentication (MFA):
- Adds an extra layer of security by requiring additional verification steps beyond just usernames and passwords

Privileged Access Management (PAM):
- Manages and monitors access for highly privileged users, such as administrators, reducing the risk of misuse
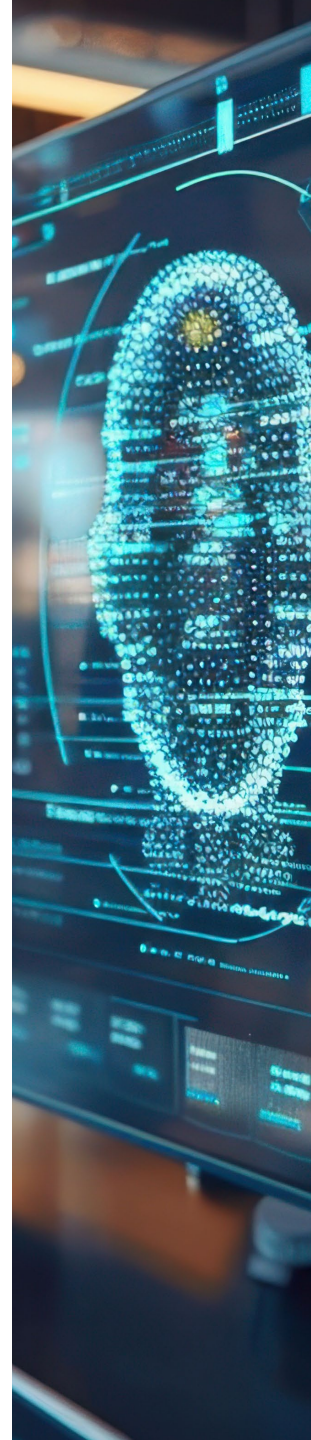
Benefits of IDAM Solutions for an Organisation

Enhanced Security:

- Prevents unauthorized access by ensuring that only the right people have the right access to critical systems and data
- Reduces insider threats by enforcing strict access controls and monitoring user activities
- Lowers the risk of credential theft through MFA and other advanced authentication mechanisms

Improved Compliance:

- Helps meet regulatory requirements such as GDPR, HIPAA, and SOX by implementing and documenting proper identity governance
- Facilitates auditing and reporting for identity-related activities, making compliance easier to manage

Operational Efficiency:

- Streamlines user management tasks such as onboarding, role changes, and offboarding
- Provides self-service capabilities (e.g., password resets), reducing the burden on IT help desks
- Supports automation of identity workflows, reducing manual intervention and errors

Better User Experience:

- Simplifies access with Single Sign-On (SSO) across various platforms and applications
- Reduces friction for users while maintaining a high level of security, leading to higher productivity

Scalability and Flexibility:

- Supports integration with a variety of systems, including on-premises, cloud, and hybrid environments
- Adapts to changing business needs, such as mergers, acquisitions, or digital transformation initiatives

Cost Reduction:

- Lowers costs related to managing and maintaining user credentials and access
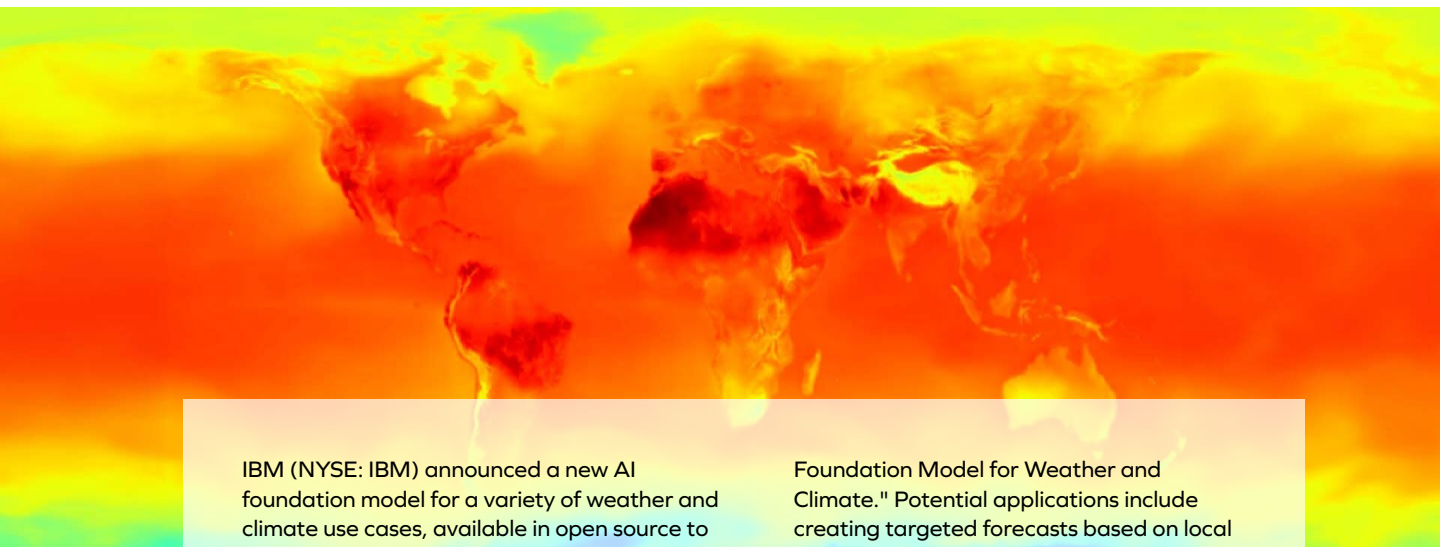- Reduces risks associated with security breaches, which can lead to financial and reputational damage

Technology Integrations:

- Designed and thoroughly tested for interoperability, making it easy to enhance authentication in cloud environments for everything from business collaboration to services management

Implementing a robust IDAM solution, organisations can safeguard sensitive information, reduce the risk of security breaches, and provide a seamless user experience while ensuring compliance with industry regulations.

Galaxy as an IT Solutions Provider strives to maintain and help the end customers to enhance their security compliance. To talk to our experts, email us at marketing@goapl.com

IBM and NASA Release Open-source AI Model on Hugging Face for Weather and Climate Applications

IBM (NYSE: IBM) announced a new AI foundation model for a variety of weather and climate use cases, available in open source to the scientific, developer, and business communities. Developed by IBM and NASA, with contributions from Oak Ridge National Laboratory, the model offers a flexible, scalable way to address a variety of challenges related to short-term weather as well as long-term climate projection.

Because of its unique design and training regime, the weather and climate foundation model can tackle far more applications than existing weather AI models, as outlined in a paper recently published on arXiv, "Prithvi WxC: Foundation Model for Weather and Climate." Potential applications include creating targeted forecasts based on local observations, detecting and predicting severe weather patterns, improving the spatial resolution of global climate simulations, and improving how physical processes are represented in numerical weather and climate models. In one experiment in the above identified paper, the foundation model accurately reconstructed global surface temperatures from a random sample of only five percent original data, suggesting a broader application to problems in data assimilation.

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Apple to Source Tata, Micron's Made-in-India Chips for Its iPhones

In a big boost to India's fast-growing semiconductor industry, tech giant Apple is reportedly mulling using made-in-India chips for the iPhones produced in the country.

Apple is in talks with Micron, the Tata Group, and other chip manufacturers setting up plants in India to source supplies worth $12 Bn for the India-produced iPhones, Financial Express reported citing sources. It is estimated that between 10 and 78 per cent of bottled water samples contain contaminants, including microplastics and various other substances including phthalates (chemicals used to make plastics more durable).

If Micron and Tata Group's units manufacture the grades needed by Apple, the bulk of the chip needed for iPhones would be sourced from these firms, creating a huge business opportunity, a source was quoted as saying by the publication.

The source also noted that no single company would be able to rival Apple's spend on microchips made in India despite demand from buyers for these chips from the defence, aviation, and auto sectors.

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Understanding Neural Networks:
The Heart of Modern AI

A neural network is a machine learning program, or model, that makes decisions in a manner similar to the human brain, by using processes that mimic the way biological neurons work together to identify phenomena, weigh options and arrive at conclusions.

Every neural network consists of layers of nodes, or artificial neurons—an input layer, one or more hidden layers, and an output layer. Each node connects to others and has its own associated weight and threshold. If the output of any individual node is above the specified threshold value, that node is activated, sending data to the next layer of the network. Otherwise, no data is passed along to the next layer of the network.

Neural networks rely on training data to learn and improve their accuracy over time. Once they are fine-tuned for accuracy, they are powerful tools in computer science and artificial intelligence, allowing us to classify and cluster data at a high velocity. Tasks in speech recognition or image recognition can take minutes versus hours when compared to the manual identification by human experts. One of the best-known examples of a neural network is Google's search algorithm.

Neural networks are sometimes called artificial neural networks (ANNs) or simulated neural networks (SNNs). They are a subset of machine learning, and at the heart of deep learning models.

Types of Neural Networks

Neural networks can be classified into different types, which are used for different purposes. While this isn't a comprehensive list of types, the below would be representative of the most common types of neural networks that you'll come across for its common use cases.

The perceptron is the oldest neural network, created by Frank Rosenblatt in 1958.

Feedforward neural networks, or multi-layer perceptrons (MLPs), are what we've primarily been focusing on within this article. They are comprised of an input layer, a hidden layer or layers, and an output layer. While these neural networks are also commonly referred to as MLPs, it's important to note that they are actually comprised of sigmoid neurons, not perceptrons, as most real-world problems are nonlinear. Data usually is fed into these models to train them, and they are the foundation for computer vision, natural language processing, and other neural networks.

Convolutional neural networks (CNNs) are similar to feedforward networks, but they're usually utilized for image recognition, pattern recognition, and/or computer vision. These networks harness principles from linear algebra, particularly matrix multiplication, to identify patterns within an image.

Recurrent neural networks (RNNs) are identified by their feedback loops. These learning algorithms are primarily leveraged when using time-series data to make predictions about future outcomes, such as stock market predictions or sales forecasting.

Neural networks vs. deep learning

Deep Learning and neural networks tend to be used interchangeably in conversation, which can be confusing. As a result, it's worth noting that the "deep" in deep learning is just referring to the depth of layers in a neural network. A neural network that consists of more than three layers—which would be inclusive of the inputs and the output—can be considered a deep learning algorithm. A neural network that only has two or three layers is just a basic neural network.

To learn more about the differences between neural networks and other forms of artificial intelligence, like machine learning, please read the blog post "AI vs. Machine Learning vs. Deep Learning vs. Neural Networks: What's the Difference?"

GALAXY
Integrating Technology | Driving Growth

A-23/24, Ambika Towers, Ground Floor,
Off. Jijamata Road, Nr. Pump House,
Andheri (E), Mumbai - 400 093, India.

+91 22 46108999

marketing@goapl.com

www.goapl.com