George Delaportas

AI Innovation Portfolio (2004–Present)

Executive Summary

George Delaportas is a distinguished computer scientist, researcher and tech entrepreneur with over two decades of contributions in Artificial Intelligence (AI) and related fields. Since 2004, he has pioneered **novel AI architectures** and led **cutting-edge AI platforms** that bridge academic innovation with real-world business impact. His work ranges from inventing a new type of neural network in the mid-2000s to founding PROBOTEK (2019), where he spearheads advanced AI solutions in computer vision, autonomous systems and generative AI. Delaportas's projects – including the *Geeks Artificial Neural Network (G.A.N.N)*, the *VORTEX AI* vision platform and the *METAVOLUTION* generative AI platform – showcase a **long-standing commitment to practical AI innovation**.

This dossier provides a structured overview of his major AI projects, highlighting each project's timeline, Delaportas's role, technical innovations and commercial applications. The aim is to demonstrate his unique positioning at the intersection of scientific research and business leadership, making him a valuable asset to investors, academic committees and enterprise executives alike.

Timeline of AI Contributions (2004–2025)

- **2004–2006: Geeks Artificial Neural Network (G.A.N.N)** – Conducted 2.5-year undergraduate research at T.E.I. of Lamia, resulting in a novel neural network framework introduced in 2006. G.A.N.N predates features of later AI frameworks and requires no coding by end-users.

- **2012: GreyOS (Meta-OS)** – Initiated development of GreyOS, an open-source "Meta Operating System" (notable as a cloud-based OS concept) now supported by PROBOTEK (indicative of Delaportas's breadth, though GreyOS is not an AI system).

- **2019: Founding of PROBOTEK** – Co-founded PROBOTEK (Feb 2019) and later PROBOTEK AI (July 2019), focusing on enterprise AI, robotics and IoT solutions. As CEO and chief architect, Delaportas drives innovation in AI-powered drone platforms,

edge AI and intelligent automation.

- **2020–2022: AI-Powered Drone Solutions** – Led development of AI modules for autonomous drones and surveillance. Notably launched *Cyclops*, a real-time computer vision system for people/object detection and tracking on any camera or drone feed. Also developed *Pyro Sense*, an AI-driven platform using autonomous drones and IoT sensors for early wildfire detection (piloted with partners like HUAWEI).

- **2024: VORTEX AI** – Introduced the VORTEX AI vision platform, a proprietary state-of-the-art computer vision system by PROBOTEK. VORTEX AI delivers robust real-time object detection and tracking with unprecedented accuracy across all camera types and conditions.

- **2025: METAVOLUTION** – Launched METAVOLUTION, a next-generation **generative AI** platform enabling domain-specific AI agents. This platform (developed by PROBOTEK) leverages large-language models and cognitive AI to automate expert tasks (e.g., an "Insurance AI Agent" demo). Delaportas positions METAVOLUTION as the *"future of Gen AI"* in enterprise settings.

Project Highlights and Contributions

To provide a comprehensive view, the following table summarizes Delaportas's major AI projects with their timelines, his roles, key innovations and impacts:

Project & Timeline	Delaportas's Role	Technical Innovation	Applied Impact
Geeks Artificial Neural Network (G.A.N.N) (2004–2006)	**Inventor & Principal Researcher** (Undergraduate research project).	**New ANN Architecture:** Designed an alternative kind of artificial neural network "introduced in 2006" that *predated* many innovations found in later frameworks like Google's TensorFlow. G.A.N.N is a *framework* that automatically builds and trains neural networks based on novel mathematical models and criteria developed specifically for it. Uniquely, it requires *no coding* from end-users to utilize its neural networks, embodying a "black-box" philosophy for ease of use.	**Scientific:** Pushed the boundaries of ANN research, introducing concepts (automated network generation, new training rules) ahead of their time in mainstream AI. **Practical:** Open-sourced for the community (available in C++ on GitHub) to inspire further development. Laid a foundation for Delaportas's later AI work by proving complex AI systems can be made *accessible and autonomous* in their design.

| VORTEX AI (2024–Present) | Creator & Lead Architect (as CEO of PROBOTEK). Oversaw concept, development and deployment. | Vision AI Platform: A proprietary computer-vision AI platform delivering *beyond state-of-the-art* performance in object detection, segmentation and tracking. VORTEX AI achieves *high accuracy with stable real-time performance* across all camera types (even low-end devices) and under all weather/lighting conditions. Benchmarks show it consistently *outperforms* popular state-of-the-art models like YOLO (v5/v8/v11) in both accuracy and robustness. The system architecture emphasizes efficiency (edge deployment in drones/IoT) and adaptability, making it hardware-agnostic and reliable in unstable visual environments. | Commercial: Deployed in enterprise and government projects requiring reliable vision analytics – e.g. traffic monitoring, security surveillance and drone-based inspections. Demonstrated *real-time tracking* of fast-moving objects with inexpensive cameras, maintaining high confidence where others falter. VORTEX AI's robustness has translated into better ROI for businesses (stable AI across varying camera infrastructure).

Impact: Establishes PROBOTEK as a leader in vision AI for industry, with a solution "clearly winning" against other AI in practical deployments. |

METAVOLUTION (2024–Present)	Creator & Chief Architect (at PROBOTEK). Leads development of platform and its AI agents.	Generative AI & Agent Platform: A comprehensive *Gen AI* platform for building domain-specific AI agents. METAVOLUTION integrates advanced natural language processing (large language models) with domain knowledge to create AI agents capable of expert tasks and decision-making. For example, an **"Insurance AI Agent"** vertical demonstrates how METAVOLUTION can automate insurance processes and client interactions using AI. The platform supports multiple verticals by providing a customizable core AI that can be tailored to different industries, combining machine learning with business rules.	Commercial: Aims to accelerate enterprise adoption of generative AI by delivering ready-made "digital experts." In insurance, METAVOLUTION's agent can handle claims or customer queries with human-like understanding. **Enterprise Impact:** Provides organizations a secure, configurable way to deploy AI assistants, improving efficiency in domains like finance, customer service and beyond. As Delaportas noted, METAVOLUTION represents *"the future of Gen AI"* for business – a strategic asset for companies looking to harness AI for knowledge-driven tasks. By enabling practical AI agents, it closes the gap between AI research (LLMs) and real-world enterprise applications.

Table: **Major AI Projects Led by George Delaportas (2004–2025).** Each project illustrates his dual focus on **technical innovation** and **practical application**, from pioneering a new neural network paradigm to deploying enterprise-grade AI platforms.

Detailed Project Portfolio

Geeks Artificial Neural Network (G.A.N.N) – *Next-Gen ANN (2004–2006)*

Overview: G.A.N.N (Geeks Artificial Neural Network) is a novel AI project Delaportas initiated during his undergraduate studies (at T.E.I. of Lamia) and completed in 2006. Spanning 2.5 years of research, this project aimed to overcome the limitations of conventional neural networks of the time. G.A.N.N is not just a single neural network model, but a *framework* that can automatically generate and train neural networks based on built-in criteria and custom mathematical models.

Delaportas's Role: As the creator and principal researcher, he single-handedly designed the architecture and algorithms of G.A.N.N. This included formulating new mathematical rules for network training and topology generation. His role encompassed both theoretical breakthroughs and practical implementation (in C/C++), making the framework available to other developers and researchers as an open-source project.

Technical Innovation: G.A.N.N introduced an *alternative kind of artificial neural network* "that predates most of the innovations" seen much later in mainstream AI libraries (like Google's TensorFlow, which emerged over a decade after). Key innovations include:

- **Automated Neural Architecture Generation:** The framework embodies a "black box" philosophy – it automates the creation, configuration and training of neural networks. A user can specify high-level criteria and G.A.N.N internally handles the network design and learning procedure. This was an early forerunner to today's AutoML and neural architecture search techniques.

- **Custom Mathematical Models:** Delaportas developed new mathematical models and training rules explicitly for G.A.N.N, enabling it to self-optimize and address issues found in existing ANNs. This bespoke approach allowed G.A.N.N to achieve capabilities that were not common in 2006-era neural nets.

- **No-Code AI Training:** Remarkably, using G.A.N.N requires **no coding** – an unusual concept at the time. This means even non-programmers or domain experts could train and deploy neural networks by interacting with the framework's interface, without writing low-level code. This foreshadowed the modern trend of democratizing AI development.

Scientific & Practical Impact: G.A.N.N's significance lies in demonstrating that **neural networks could be made more accessible and autonomous**. Scientifically, it contributed a fresh perspective on neural network design, challenging the status quo by showing that an algorithm could *itself design another learning algorithm*. Its ideas (auto-generation of networks, unified "core" ANN logic) hinted at later developments in AI. The work was shared with the academic and open-source community, ensuring verifiable public knowledge of the innovation.

For instance, the G.A.N.N documentation and source code were made available on platforms like Academia.edu and GitHub, allowing others to verify and build upon the concept. While G.A.N.N was a research prototype (not a commercial product on its own), it was a foundational achievement in Delaportas's career, cementing his identity as an AI *inventor*. The experience and insight gained from G.A.N.N's development informed many of his later projects in AI and enterprise technology.

VORTEX AI – *Vision AI Platform Beyond State-of-the-Art (2024–Present)*

Overview: VORTEX AI is a flagship AI platform developed under Delaportas's leadership at PROBOTEK. Launched in 2024, VORTEX AI is a **proprietary computer vision platform** designed to deliver real-time, highly accurate visual perception for a variety of applications. It is described as *"the best vision AI there is"*, emphasizing its performance edge over existing solutions. VORTEX AI provides a complete suite of vision capabilities – object detection, classification, segmentation, tracking and recognition – all packaged in a robust system that can run on the edge (e.g., on drones or surveillance cameras) or in the cloud.

Delaportas's Role: As the creator and lead architect of VORTEX AI, Delaportas conceived the platform's vision and oversaw its development from concept to deployment. In his capacity as Co-Founder & CEO of PROBOTEK, he directed a team of engineers to implement his vision of a next-generation vision AI engine. He also serves as the chief evangelist for VORTEX, demonstrating its capabilities to partners and clients. With **20+ years of AI experience** behind him, he infused VORTEX AI with lessons learned from both his research (like G.A.N.N) and industry projects.

Technical Innovation: VORTEX AI's claim to fame is delivering *beyond state-of-the-art* performance in conditions that typically challenge conventional vision models. Some key technical aspects include:

- **Universal Camera Compatibility:** VORTEX AI maintains high accuracy and stable performance "across all cameras (yes, the low-end ones as well) and all weather conditions". This means the system is hardware-agnostic and resilient – a stark contrast to many AI models that require high-resolution or specific camera types. Achieving this involved innovations in image preprocessing, dynamic parameter tuning and robust model training to handle noise, low light and other real-world variabilities.

- **Superior Accuracy and Stability:** The platform has been benchmarked against the YOLO family of models (YOLOv5, v8, v11 – widely regarded as industry-standard for real-time object detection). VORTEX AI is *consistently more accurate and stable* in its detections, as evidenced by side-by-side video comparisons. Even under stress tests like fast-moving camera feeds, nighttime conditions, or heavy occlusions, VORTEX AI's detections remain reliable where other models degrade. This is a result of advanced model architecture and training; while proprietary details aren't publicly disclosed, it likely involves novel network ensembles or adaptive algorithms that Delaportas and his team

developed.

- **Enterprise-Ready Performance:** VORTEX AI is designed for *real-time* processing with a high throughput, crucial for enterprise deployment. It can process live video streams on modest hardware while applying complex vision tasks (simultaneous detection, tracking, etc.). The stability of its confidence scores (often staying above 80–90% in scenarios where others fluctuate) is critical for enterprise users who require consistent outputs for automation triggers (e.g., a security system raising an alarm only when confident).

Commercial and Applied Impact: Since its introduction, VORTEX AI has been applied in multiple domains, validating its versatility and business value:

- **Surveillance and Security:** VORTEX AI's ability to detect and track people or objects using ordinary CCTV cameras makes it ideal for smart security solutions. For instance, integrated with PROBOTEK's *Cyclops* system, it can monitor entrances, identify individuals or vehicles and alert on suspicious activity in real-time. Enterprises and governments benefit from improved situational awareness without needing expensive camera overhauls.

- **Autonomous Drones and Inspections:** As part of PROBOTEK's drone platforms, VORTEX AI enables drones to "see" with great clarity. In drone-based inspections (industrial, agricultural, or infrastructure monitoring), it can reliably identify targets or anomalies (e.g., detecting faults in power lines or finding people in search-and-rescue) even with the shaky, low-grade video that drones often feed. This was demonstrated in *traffic control* scenarios where VORTEX AI tracked vehicles from a moving drone camera, outperforming standard models.

- **Wildlife and Disaster Management:** VORTEX's technology underpins solutions like **Pyro Sense**, which deploys autonomous drones with AI to spot wildfires in their early stages. This platform, supported by partners like Huawei, uses VORTEX AI for smoke and fire detection from aerial views, integrating sensor data for early warning. The impact is potentially lifesaving – faster detection leads to quicker response in forest fire incidents.

- **Enterprise AI Leadership:** From a business perspective, VORTEX AI has become a cornerstone of PROBOTEK's offerings, helping secure partnerships and clients. Its "beyond SotA" reputation and proven demos lend credibility to PROBOTEK as an AI innovator. Delaportas often highlights that **VORTEX AI is a clear winner against other vision AI** on the market, which appeals to investors and customers looking for best-in-class technology. This platform exemplifies how Delaportas translates cutting-edge research into **deployable products** that solve real-world problems with AI.

METAVOLUTION – *Generative AI & AI Agent Platform (2024–Present)*

Overview: METAVOLUTION is Delaportas's latest major initiative in AI – a platform focused on **generative AI** and intelligent agents. Emerging in late 2024 and gaining momentum in 2025, METAVOLUTION is described as a solution for creating AI-driven agents across various industry verticals. In essence, it leverages advances in large language models (LLMs) and cognitive AI to build **"virtual experts"** that can understand context, converse naturally and perform tasks specific to a given domain. The platform's name suggests a *metamorphosis* in how AI is applied – evolving beyond narrow tasks to more generalist, adaptable agents. Delaportas touts METAVOLUTION as part of the *"future of Gen AI"* for enterprise use.

Delaportas's Role: As with VORTEX AI, Delaportas is the chief architect and driving force behind METAVOLUTION. Within PROBOTEK, he leads the strategy on how generative AI can be harnessed for business solutions. He guides the R&D team in selecting and customizing language models, developing the platform's architecture and defining its integration capabilities. Additionally, he plays a crucial role in demonstrating METAVOLUTION to stakeholders – for example, presenting domain-specific demos like the *Insurance AI Agent* to illustrate the platform's potential in a concrete scenario. His dual insight into cutting-edge AI research and enterprise needs uniquely positions him to align METAVOLUTION's capabilities with market demands.

Technical Innovation: METAVOLUTION's innovations lie in how it builds **domain-optimized AI agents**. Key features and technologies include:

- **Large Language Model Integration:** At its core, METAVOLUTION employs advanced NLP models (likely leveraging architectures similar to GPT or other state-of-the-art LLMs) as the brain of each agent. These models enable understanding of natural language input and generation of human-like responses. Delaportas ensures these models are fine-tuned or configured for each domain (e.g., insurance, finance, tech support), so that the agent's knowledge and tone align with professional requirements.

- **Multi-Modal and Tool Use:** The platform is expected to allow agents not just to chat, but also to take actions – querying databases, retrieving documents, or triggering workflows. For instance, an insurance AI agent would not only answer policy questions but could also fetch relevant policy data or initiate a claim process. This requires integrating the LLM with APIs and enterprise systems (a technical area requiring robust design to maintain security and reliability).

- **Vertical "AI Verticals" Structure:** METAVOLUTION is described as having multiple *AI verticals*, meaning it can host different specialized agents on one platform. Each vertical comes with domain-specific ontologies, data connectors and compliance rules. The *Insurance AI Agent* is one such vertical – trained on insurance knowledge bases, compliant with insurance regulations and able to interact with insurance software. This modular approach is innovative in that it aims to shorten deployment time: clients can pick an "AI agent template" for their industry and quickly adapt it, rather than starting

from scratch.

- **User-Friendly Agent Training:** Continuing Delaportas's ethos of accessibility (seen first in G.A.N.N's no-code approach), METAVOLUTION likely features a user-friendly interface for refining an agent's behavior. Non-AI experts (like business analysts) might define rules or provide examples to the agent to refine its outputs. Under the hood, the platform would then handle the complex task of updating the AI's model or prompt strategies accordingly.

Commercial and Applied Impact: METAVOLUTION is poised to have broad implications across industries by enabling the deployment of AI assistants that can **augment or automate knowledge work**:

- **Enterprise Automation:** Businesses can use METAVOLUTION to create AI agents that handle routine yet knowledge-intensive tasks. In insurance, for example, an agent can quote policies, answer customer queries about coverage, or even assist in claims adjudication by analyzing input information against policy rules. This frees up human experts to focus on complex cases, improving overall productivity. Other potential verticals include legal (AI paralegals scanning contracts), healthcare (AI patient triage or insurance pre-authorization assistants) and IT services (AI helpdesk agents).

- **Consistency and 24/7 Service:** An AI agent built on METAVOLUTION can provide uniform quality in responses and be available around the clock. This improves customer experience and reliability of service. For instance, a METAVOLUTION agent in customer support will always adhere to the company's knowledge base and policies, reducing human error and wait times.

- **Strategic Advantage:** By developing METAVOLUTION in-house, Delaportas positions PROBOTEK (and its partners) at the forefront of the generative AI wave. As enterprises carefully evaluate how to adopt large language models, having a proven platform with domain-specific success stories (like the insurance agent demo) instills confidence. In communications to industry peers, Delaportas has explicitly invited collaboration, claiming **"we have platforms to support you"** in vision AI and Gen AI – indicating that METAVOLUTION is ready to be leveraged by external organizations, potentially as a product or service offering. This could open revenue streams via licensing or SaaS models for PROBOTEK.

- **Academic and Ethical Rigor:** Given his scientific background, Delaportas likely ensures METAVOLUTION's agents are developed with careful attention to data ethics, bias mitigation and reliability – all critical for AI in enterprise. While details are proprietary, one can infer that model outputs are monitored and the platform supports human-in-the-loop oversight when deploying an AI agent in sensitive roles.

In summary, METAVOLUTION underscores Delaportas's ability to **translate frontier AI research (LLMs, cognitive agents) into practical platforms**. It complements VORTEX AI by covering the *cognitive* spectrum of AI (language and decision-making) as opposed to the perceptual spectrum that VORTEX AI addresses. Together, his work on these platforms solidifies a comprehensive AI portfolio.

Other Notable AI Innovations and Leadership

Beyond the headline projects above, Delaportas has led or contributed to several other AI-driven solutions that reinforce his profile as a well-rounded innovator:

- **AI in Autonomous Systems (PERCEPTRON & Drones):** Under Delaportas's guidance, PROBOTEK developed **PERCEPTRON**, an all-in-one drone AI module that transforms any simple drone into an autonomous, smart drone. PERCEPTRON uses onboard AI for flight control, obstacle avoidance and mission planning – effectively a "brain in a box" for drones. This innovation allows deployment of intelligent drone fleets for tasks like surveillance, delivery and emergency response without custom-building AI for each drone. Its key features include AI-driven environment perception and adaptive navigation, showcasing how Delaportas's expertise extends AI into robotics.

- **Human-AI Interaction (ALiSA Voice Assistant & CEREBRUM BCI):** Delaportas's team also built **ALiSA**, an AI-powered voice assistant integrated into drone operations. ALiSA can execute complex drone mission commands from a human operator's voice instructions, using natural language understanding to translate commands into actions. It provides audible feedback and has safeguards to verify critical actions. Furthermore, pushing boundaries, **CEREBRUM** is a brain–computer interface (BCI) solution developed under his leadership that enables controlling drones via human thought signals. CEREBRUM is heralded as the first complete mind-control system for drones and when combined with ALiSA's AI, it forms an interactive system (dubbed "ALiSA-Ψ") where the operator's brain commands are confirmed and executed with AI assistance. These projects illustrate Delaportas's penchant for futuristic AI applications and his ability to integrate AI with emerging interfaces.

- **Innovations in IoT and Edge AI (Z0C Protocol & IoT Connectivity):** While not purely AI, Delaportas's work on the **Z0C protocol** intersects with AI-driven IoT deployments. Z0C (developed as an open initiative he led) enables devices to communicate data in zero-connectivity scenarios – for instance, drones or sensors can relay information via ad-hoc WiFi even with no internet. This kind of resilient data pipeline complements AI systems like VORTEX AI and METAVOLUTION by ensuring they can function in austere or offline environments (crucial for disaster-response drones or remote field deployments of AI). It demonstrates his holistic approach to deploying AI at scale: solving not just the algorithm, but also supporting infrastructure.

- **Academic Engagement and Thought Leadership:** Delaportas's contributions are also reflected in thought leadership pieces and community engagement. He has published analyses (e.g., comparing G.A.N.N. to modern AI approaches) and often shares insights on platforms like LinkedIn and DEV Community. For example, he penned an article announcing *"an earth shattering innovation that changes everything in the vision AI sector"* and detailing VORTEX AI's capabilities and actively discusses AI trends on social media (using his handle "ViR4X"). This not only keeps him at the cutting edge but also influences practitioners and young engineers who follow his work.

Each of these additional endeavors, while not as publicized as G.A.N.N, VORTEX AI, or METAVOLUTION, reinforces the narrative of a career dedicated to **applied AI innovation**. From autonomous drones to brain-controlled interfaces, Delaportas consistently explores new frontiers and brings interdisciplinary ideas into functional reality.

Conclusion and Impact Summary

George Delaportas's portfolio from 2004 to the present paints the picture of a technologist who thrives at the intersection of **scientific research and entrepreneurial execution**. Over roughly two decades, he has **repeatedly anticipated key AI trends** – from automated neural networks (mid-2000s), to cloud-based platforms and IoT integration (2010s), to cutting-edge vision AI and generative AI in the 2020s – and transformed these insights into tangible platforms and products. His dual role as a **scholar-inventor ("Professor") and business leader (CEO/CIO/CTO)** has enabled him to push boundaries while ensuring solutions are practical and impactful.

Key themes in Delaportas's impact include:

- **Pioneering Innovation:** He doesn't just use existing AI techniques – he invents new ones. G.A.N.N is evidence of a pioneering mindset that challenged AI conventions early on. That inventive spirit continues in VORTEX AI's superior vision algorithms and METAVOLUTION's agent-centric approach, marking him as a creator of original IP and potentially a holder of patents or proprietary know-how in AI.

- **Applied Solutions with Measurable Results:** A hallmark of his work is the **translation of theory into practice**. VORTEX AI, for instance, isn't an academic exercise – it's deployed and proven against industry benchmarks (outperforming YOLO models) and used in real-life scenarios. This delivers value to customers (better accuracy, reliability and ROI) and to society at large (e.g., improved public safety through better surveillance and disaster response).

- **Leadership and Vision:** As a founder of tech ventures (like PROBOTEK) and leader of R&D teams, Delaportas has shown the ability to build and motivate organizations around advanced AI. His projects often involve coordinating multi-disciplinary efforts – combining software, hardware (drones, IoT) and integration with enterprise systems. The success of PROBOTEK's projects, such as securing partnerships in EU programs (Horizon 2020 projects like RESPOND-A and TALON) and attracting investments, attests to his leadership and the confidence others place in his vision.

- **Long-Term Commitment to AI:** From the mid-2000s to mid-2020s, Delaportas's continuous focus on AI is evident. Even as he ventured into related fields (security, IoT, operating systems), he kept AI at the core of his endeavors, often finding synergies (like adding AI to drones, or AI to voice interfaces). This long-standing dedication means he brings a *depth of experience* – nearly 20 years – which few in this rapidly evolving field have. In fact, he often emphasizes that *"impossible is not in [his] vocabulary"*, reflecting a mindset crucial for pushing AI beyond current limits.

In a landscape where bridging the gap between **academic AI breakthroughs** and **enterprise needs** is both challenging and sought-after, George Delaportas stands out as an individual who has successfully inhabited both worlds. His portfolio dossier illustrates not only a series of impressive projects but also a coherent narrative of using AI to create **disruptive platforms with global impact**. Whether it is an investor evaluating a visionary startup, an academic committee seeking proof of real-world impact, or an enterprise executive looking for leadership in digital transformation, Delaportas's record offers credibility. His work exemplifies how practical innovation can stem from deep expertise and it positions him as a unique asset at the nexus of technology innovation and business strategy in the AI domain.