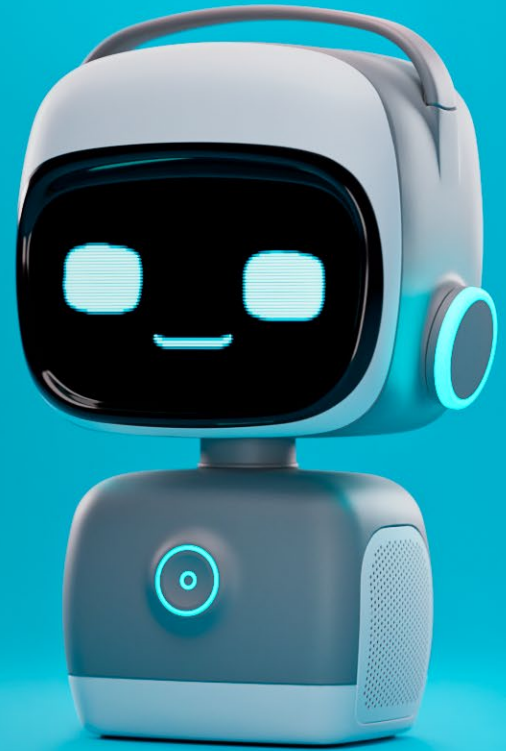


Powering the AI robot companion for language and speech learners

Created on Dell Precision AI-Ready workstations — powered by NVIDIA RTX™ GPUs — Norby, the clever little language robot, is set to revolutionize language learning and speech therapy.



Business needs

Tech innovation business Norby is on a mission to maximize human potential by building intelligent learning tools. It needed a technology partner with market-leading AI credentials and the infrastructure to power large language models, accelerating program animation and hardware design.

Business results



Develops the ability to train and fine-tune large language models locally on-device.



Accelerates iteration cycles.



Increases reliability of compute-intensive workloads and renderings.



Delivers more efficient updates thanks to edge computing.

Solutions at a glance

- [Dell Precision AI-Ready workstations powered by NVIDIA RTX™ GPUs](#)
- [Dell AI Factory with NVIDIA](#)



Norby measures success by how quickly users begin actively speaking a language.

Imagining an improved learning experience

Learning a new language is challenging. For some, it seems a near impossible feat. Norby's creator, Adrian Mullan, grew up with Irish/Chinese parents and spent his Saturdays learning the hard-to-master language of Mandarin — and he hated the experience of repetition and memorization. When his daughter encountered the same difficulties, he realized that it was the same rote learning process he had been through 30 years prior.

Many children leave school barely able to speak languages they've spent years learning. And while there are many language apps available, Adrian wanted to create an interactive device, tailored to each individual user's specific needs and preferences. He believed that a more engaging experience would be the most effective way to learn and practice — and in 2016, the idea of Norby, the conversational language companion, was born.

Building an intelligent conversation companion

Considerable technological challenges lay ahead. For Norby to converse naturally, it needed to be able to hold a conversation based on the user's interests and desired outcome. Whether an eight-year-old boy in Tokyo learning English, or an 80-year-old stroke patient learning to speak again, Norby would need to allow for different accents, levels of proficiency and comprehend local slang and idioms.

Bringing Norby to life required using several large language models (LLMs). Building in two-way functionality, speech recognition, and personalization meant leveraging AI technology. It was also important for Norby to be friendly, as its users may have a learning disability or struggle with classroom learning.

On top of the software-based work involved, the Norby team also had to deal with a hardware component — accommodating microphones, voice input, and creating the robot's body.

Designing and building the physical robot device meant mechanical engineers needed to work on large CAD files and run sizeable renders. Leveraging Dell Technologies solutions simplified these complex processes, saving time and money.

Driving innovation with Dell

Norby chose the Dell Precision AI-Ready workstations equipped with NVIDIA RTX™ GPUs for their ability to develop and deploy AI models locally. Fine-tuning data locally ensures enhanced privacy and security in the iteration stage. Norby used these powerful and reliable technologies in three distinct areas of the business: building the intelligent learning function, designing the physical robot device and producing marketing materials.

To develop the learning function, data scientists used Precision workstations to run multiple LLMs, with a software layer above. This enabled the customization of human-to-computer conversational interaction, multi-lingual support, personalized user responses, and real-time feedback for continuous improvement.

Norby's product designers harnessed the performance of Precision workstations and CAD applications to create mathematically precise 2D and 3D models — delivering accuracy and physical feasibility.

In marketing, Norby used the powerful NVIDIA RTX™ GPUs to accelerate animated renderings that featured in attention-grabbing videos, such as exploding shots displaying Norby's different components.

Achieving next-level efficiency and productivity

The Dell AI Factory with NVIDIA delivers the industry's broadest portfolio of generative AI solutions. By combining Dell's AI infrastructure and NVIDIA's industry-leading GPUs, high-performance networking, and software with comprehensive turnkey strategies and automated workflows, the Dell AI Factory with NVIDIA gives organizations the confidence to securely develop and deploy generative AI at scale.

“ Models that would run overnight are now completed within an hour, enabling us to quickly continue iteration.”

Adrian Mullan,
Founder and CEO of Norby

“ With AI technology on Dell Precision workstations, we can tailor how Norby interacts with each user. This makes it more engaging to learn or relearn a language.”

Adrian Mullan
Founder and CEO of Norby



Dell Technologies and NVIDIA empower Norby the robot with AI-accelerated software to fine-tune and leverage AI workloads, significantly improving the speed and reliability of its processes.

Looking ahead, Norby is excited by Dell Technologies' ability to iterate its range of Precision workstations with new graphics cards from NVIDIA. Thanks to the speed and reliability of Dell Precision workstations in its tech stack, Norby has gone from supporting 20 languages to having the capability to teach more than 40 – with further languages set to be added regularly.

Determining Norby's next steps

Although Norby the robot is currently in the launch phase and the business is already looking at how it can take the technology it has developed to the next level. This will be vital in helping Norby deliver pilot programs in language learning centers and elderly care facilities. Adrian would like to see Norby in schools and hospitals, too.

Another future prospect that excites Norby as a business, is the ability to access LLMs in the cloud. This significant innovation will enable Norby to train or fine-tune them at the edge, helping overcome privacy and data compliance issues when Norby takes the robot companion to the healthcare market.

Dell's position as an AI innovator was an enabler for Norby to build its intelligent language companion. And with Norby's future innovations combined with the continuous iterations of Dell Precision AI-ready workstations with NVIDIA RTX™ GPUs, the learning possibilities seem endless.

“ The speed increases we've seen from AI over the last 18 months have been dramatic.”

Adrian Mullan,
Founder and CEO of Norby

[Learn More](#) About Dell Precision AI-ready workstations.

Connect on Social.



DELLTechnologies

 **nVIDIA**