Innovating with Generative AI at Amazon

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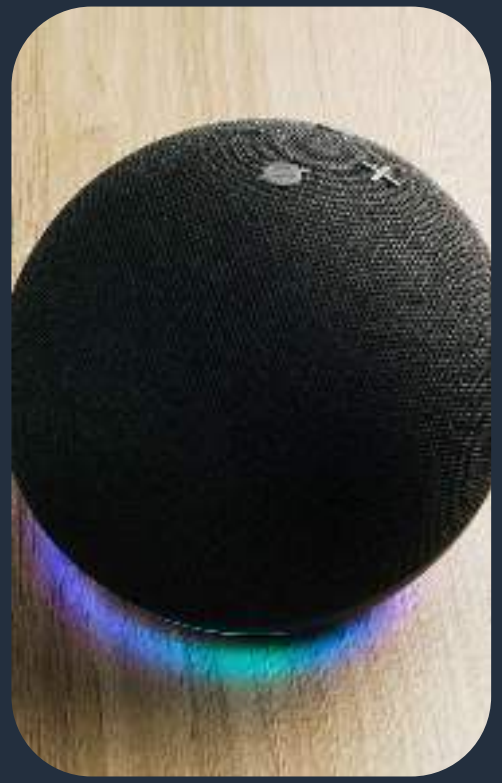
Amazon has been innovating with AI for over **25 years**

8,600 products per minute sold on Amazon.com

First Prime Air delivery on **December 7, 2016**



Billions of Alexa interactions each week

1.6M packages every day

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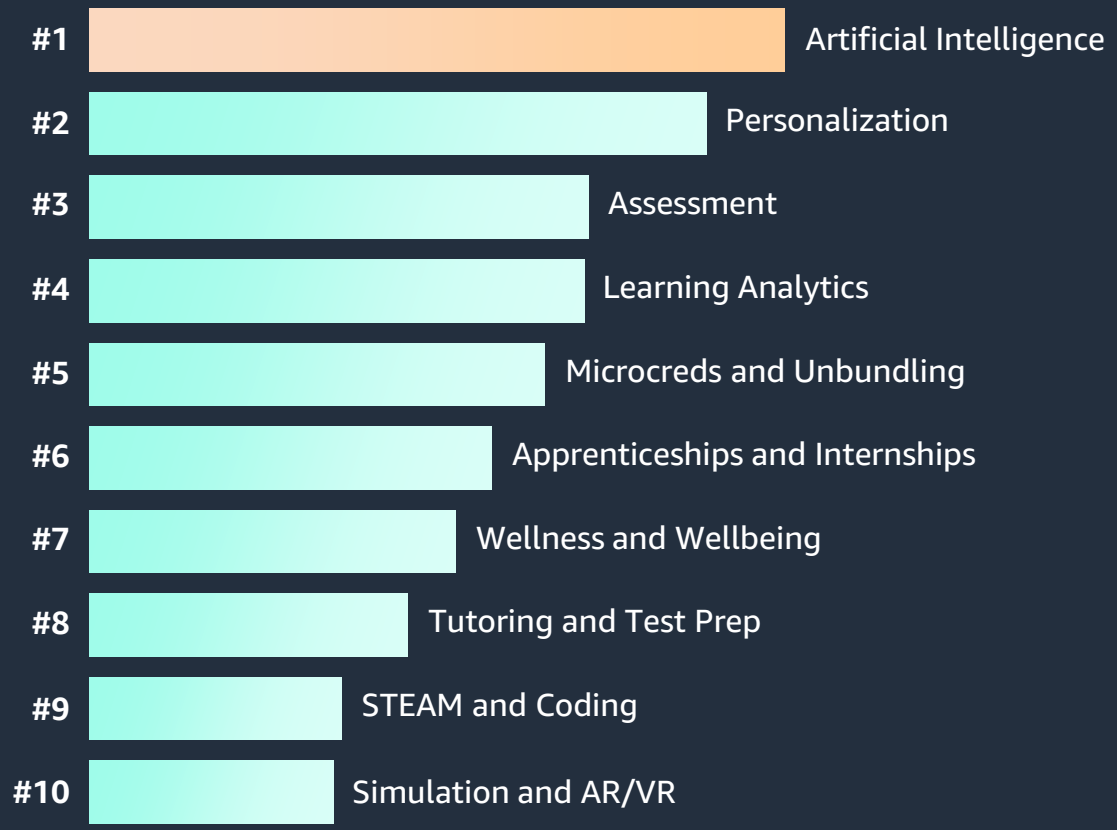
Trends in education

Top 10 trends in education



Source: HolonIQ Back to School Summit survey of CEOs and Education Leaders.
Choices based on interviews conducted in lead-up to Summit.

"The rise of AI will bring about significant changes in education, making it more personalized and accessible to students around the world."

Professor Stephen Hawking
University of Cambridge

"The future we're heading into is one that merges the digital and physical worlds, and Gen Alpha does that seamlessly."

Monica Ares
Executive Director of the IDEA Lab at the Imperial College Business School

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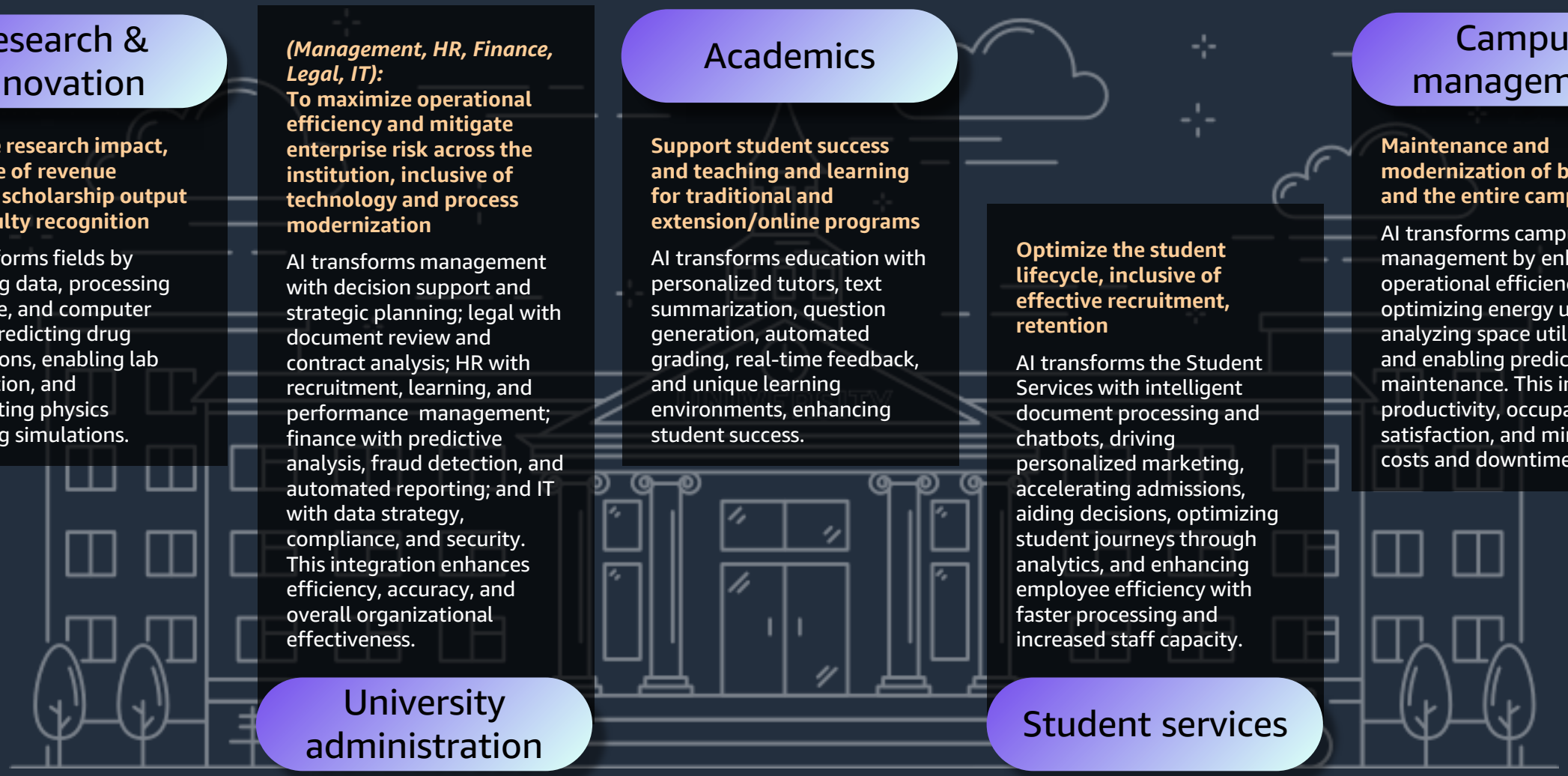
The future of higher education with AI



Research & innovation

Increase research impact, inclusive of revenue growth, scholarship output and faculty recognition

AI transforms fields by analyzing data, processing language, and computer vision, predicting drug interactions, enabling lab automation, and accelerating physics modeling simulations.

University administration

(Management, HR, Finance, Legal, IT):
To maximize operational efficiency and mitigate enterprise risk across the institution, inclusive of technology and process modernization

AI transforms management with decision support and strategic planning; legal with document review and contract analysis; HR with recruitment, learning, and performance management; finance with predictive analysis, fraud detection, and automated reporting; and IT with data strategy, compliance, and security. This integration enhances efficiency, accuracy, and overall organizational effectiveness.

Academics

Support student success and teaching and learning for traditional and extension/online programs

AI transforms education with personalized tutors, text summarization, question generation, automated grading, real-time feedback, and unique learning environments, enhancing student success.

Student services

Optimize the student lifecycle, inclusive of effective recruitment, retention

AI transforms the Student Services with intelligent document processing and chatbots, driving personalized marketing, accelerating admissions, aiding decisions, optimizing student journeys through analytics, and enhancing employee efficiency with faster processing and increased staff capacity.

Campus management

Maintenance and modernization of buildings and the entire campus

AI transforms campus management by enhancing operational efficiency, optimizing energy use, analyzing space utilization, and enabling predictive maintenance. This improves productivity, occupant satisfaction, and minimizes costs and downtime.

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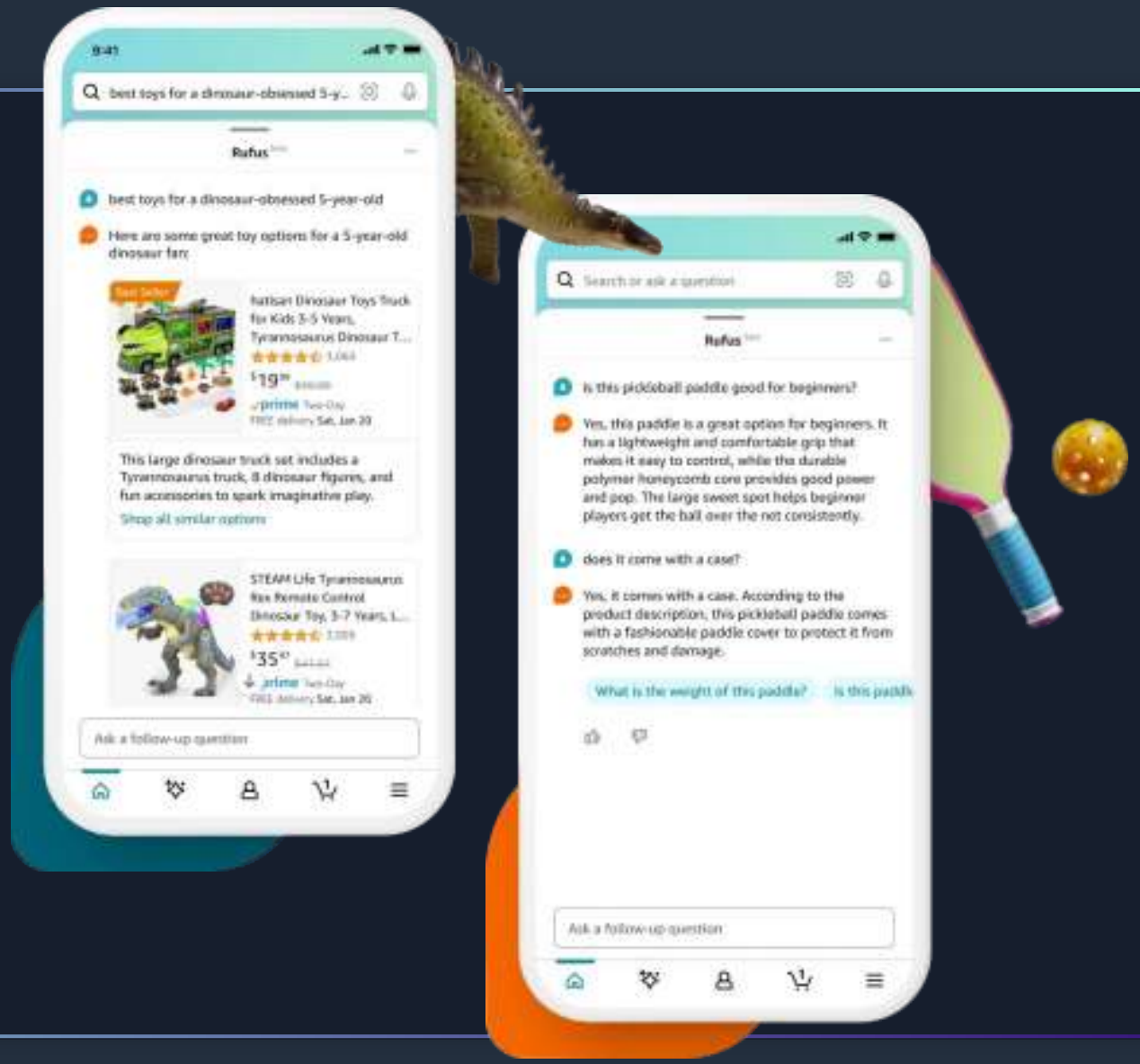
Rufus

Generative AI-powered shopping assistant

- Find and compare products
- Trained on Amazon's extensive product catalog, customer reviews, Q&A, and more
- One of the most advanced models ever created by Amazon—available to internal Amazon builders
- Runs on AWS designed Inferentia and Trainum chips



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Amazon Pharmacy

Faster prescriptions and more helpful support

- LLM based chatbot to support customer care teams on Amazon SageMaker
- Embedding model for information retrieval from lengthy medical records
- Provide patients with pricing transparency
- Simplify prescription instructions

Increase order processing speed by 90%, and reduce the rate of human error

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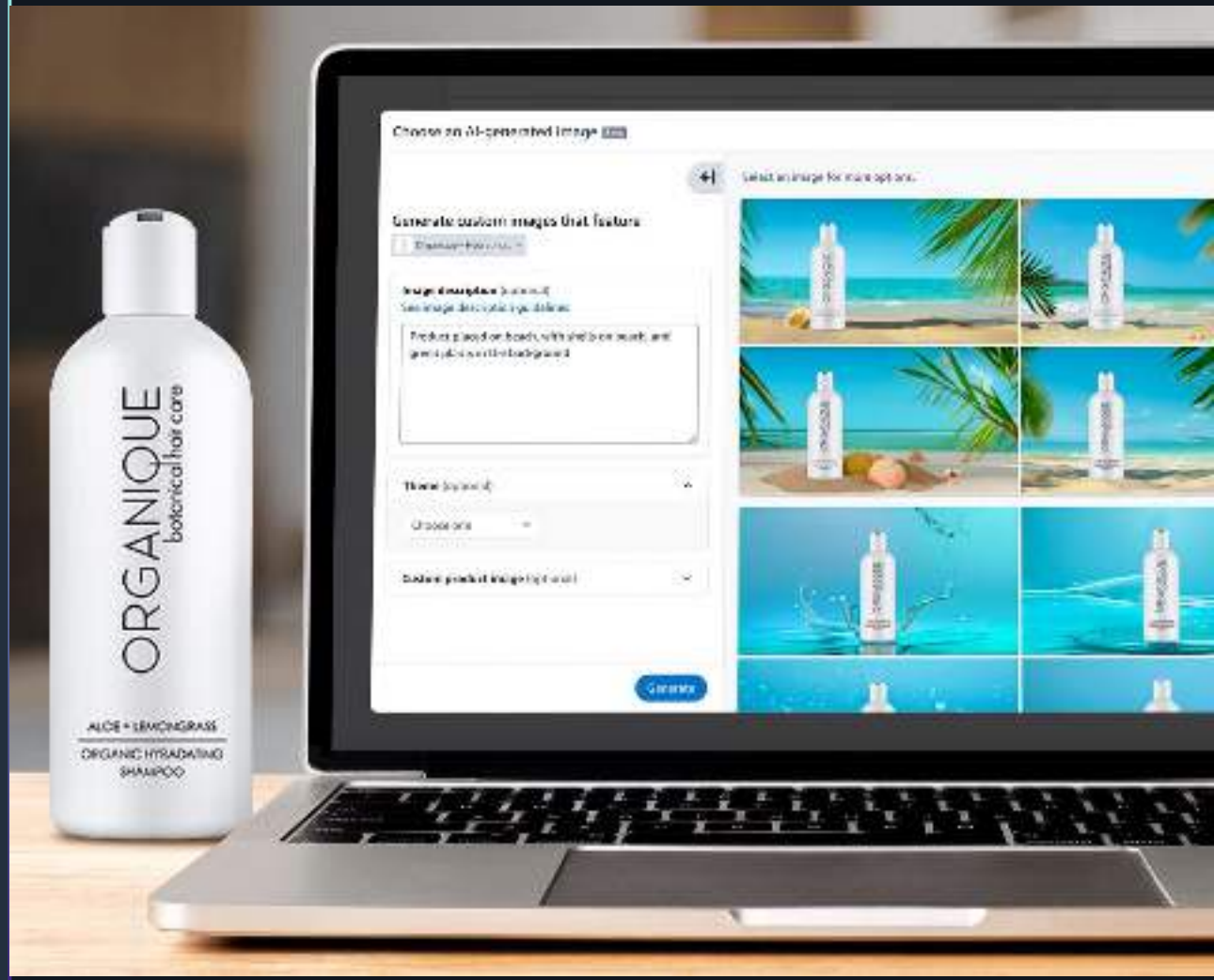
Amazon Ads

Empowering advertisers to elevate creativity, crafting ads with generative AI capabilities

- Remove creative barriers and enable brands to produce more dynamic and engaging experiences for customers
- AI-powered image generation, video generation, and audio generation now all available
- Powered by Amazon SageMaker



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Everything you need to deliver **innovation at scale**

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AWS Generative AI stack

APPLICATIONS TO BOOST PRODUCTIVITY

Amazon Q Business
INSIGHTS AND AUTOMATION

Amazon Q Developer
SOFTWARE DEVELOPMENT LIFE CYCLE

MODELS AND TOOLS TO BUILD GENERATIVE AI APPS

Amazon Bedrock
AMAZON MODELS | PARTNER MODELS

INFRASTRUCTURE TO BUILD AND TRAIN AI MODELS

Amazon SageMaker
MANAGED INFRASTRUCTURE

AWS Trainium
AWS Inferentia

GPUs

HIGH PERFORMANCE COMPUTE

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< one hour coding time

The median developer spends less than one hour a day writing code[1]

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[1] Software.com, “Global Code Time Report,” January 2022

Amazon Q Developer

Helps developers and IT professionals build faster across the entire software development lifecycle (SDLC)

Most accurate coding recommendations

Agents can autonomously help you implement features, refactor code, perform software upgrades and more

Amazon Q is an expert on AWS and optimizing AWS environment

Best-in-class security vulnerability scanning and remediation

Amazon Q is built with security and privacy in mind from the start, making it easier for organizations to use generative AI safely.

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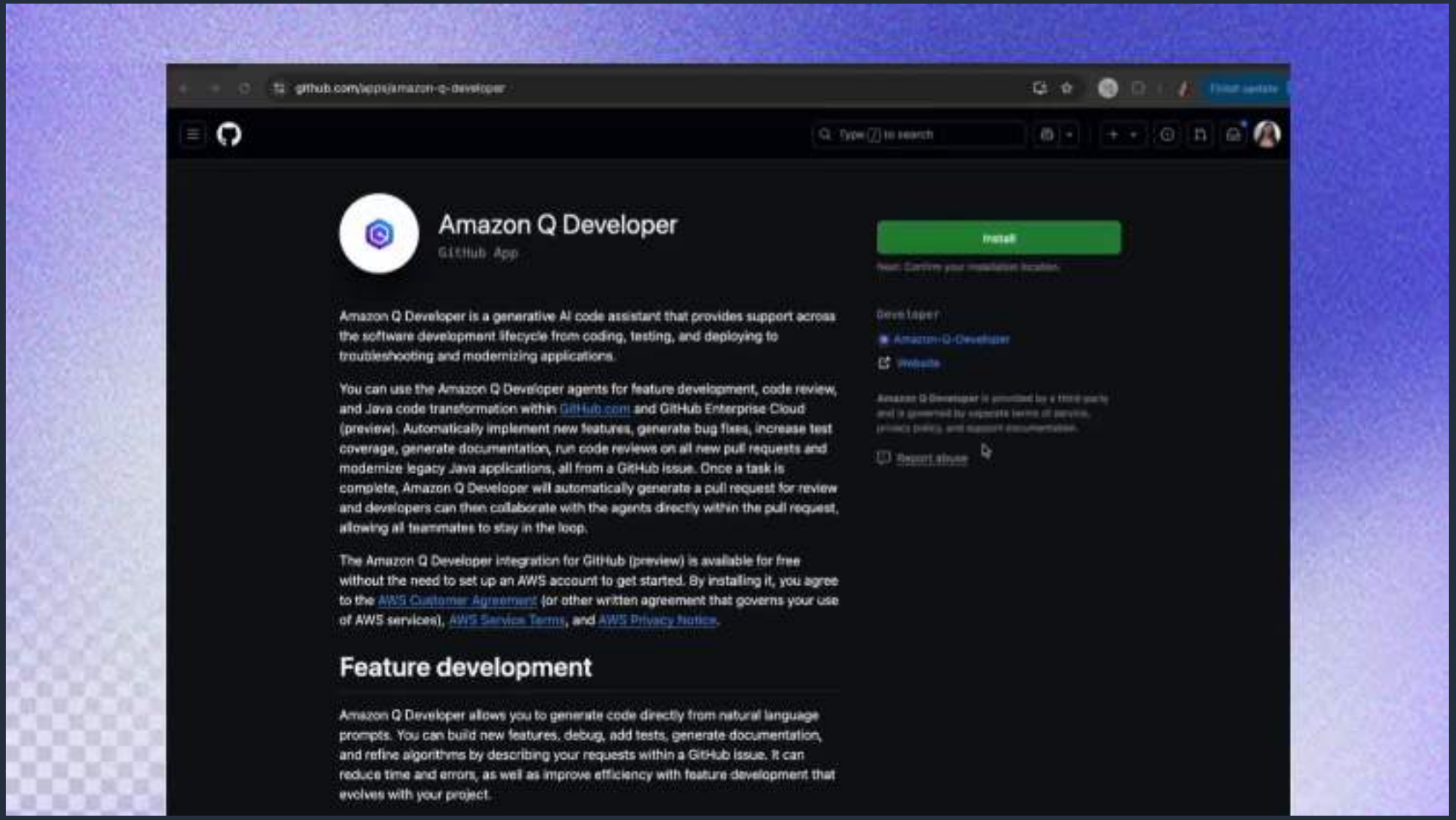
Amazon Q Developer integration in GitHub

NEW

NOW IN PREVIEW



Maintain, Modernize, and Transform

AMAZON Q CODE TRANSFORMATION

.NET Framework applications on Windows	Analysis Planning Refactoring Compatibility tests	→	Cross-platform .NET applications on Linux
COBOL applications on mainframes	Documentation Wave planning Decomposition Refactoring	→	Java applications on AWS
VMware workloads on-premises	Discovery Wave planning Network automation Workload migration	→	VMware workloads on Amazon EC2
Java applications in v8, v11	Build/test v8/v11 Apply knowledge base Build/test v17Error fixing using genAI	→	Java applications in v17 and v21

Up to
4 x faster

Up to
40% savings

Access to
a range of LLMs

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Amazon Nova Foundation Models

State-of-the-art foundation models that deliver frontier intelligence and industry-leading price performance

UNDERSTANDING MODELS

Amazon Nova **Micro**

Amazon Nova **Lite**

Amazon Nova **Pro**

Amazon Nova **Premier**

CREATIVE CONTENT GENERATION MODELS

Amazon Nova **Canvas**

Amazon Nova **Reel**

SPEECH-TO-SPEECH MODEL

Amazon Nova **Sonic**

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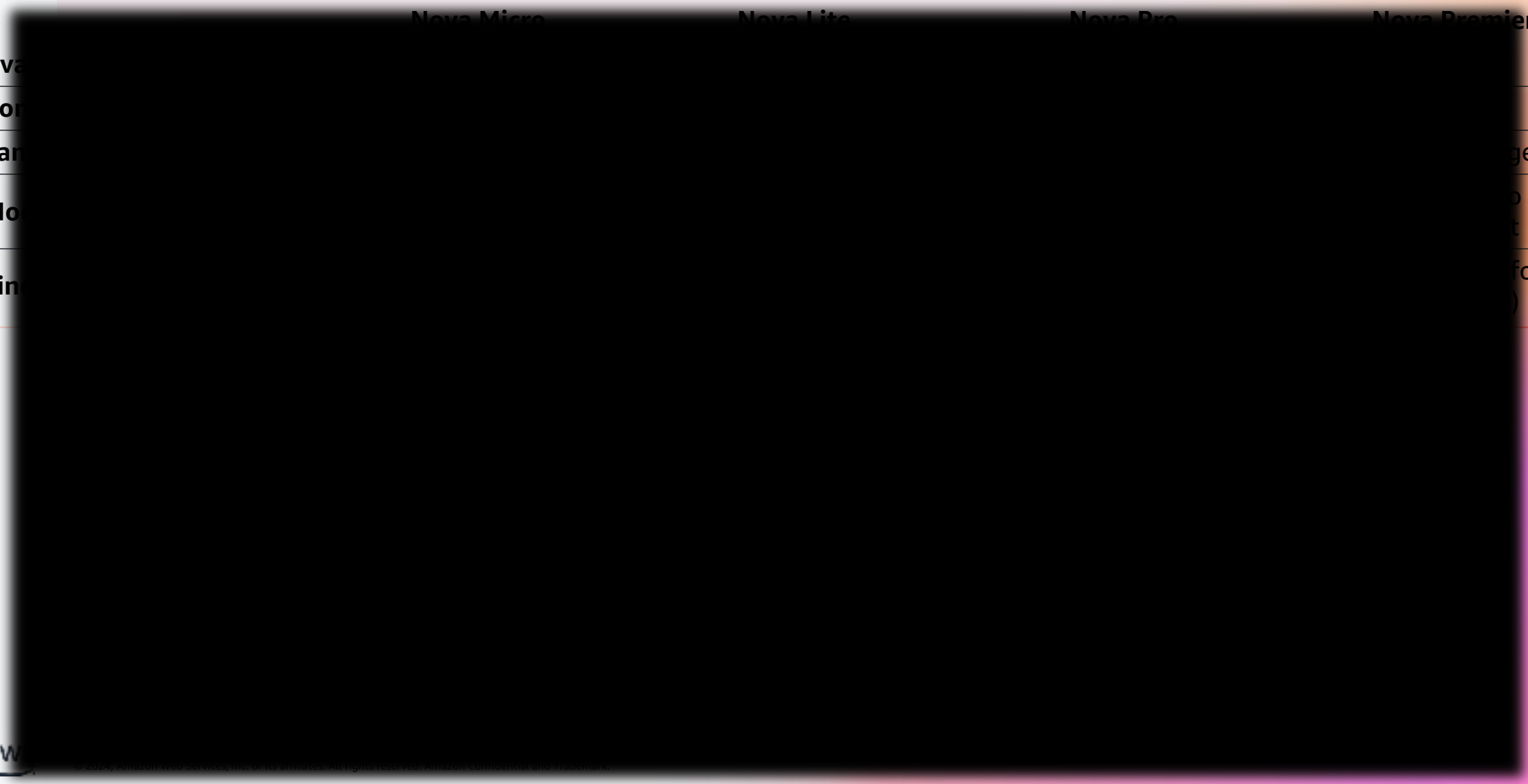
Amazon Nova: Understanding Models

	Amazon Nova Micro	Amazon Nova Lite	Amazon Nova Pro	Amazon Nova Premier
Ava				
Cor				
Lan				ges
Mo				input;
Fin				for



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Amazon Nova Canvas – Text to image

GENERATE IMAGES FROM TEXT PROMPTS

A portrait of a smiling young woman with long, flowing hair, standing in natural sunlight

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Amazon Nova Reel - Text to video

GENERATE VIDEOS FROM TEXT PROMPTS

“Slow cam of a man middle age; 4k; Cinematic; in a sunny day; peaceful; highest quality; dolly in;”

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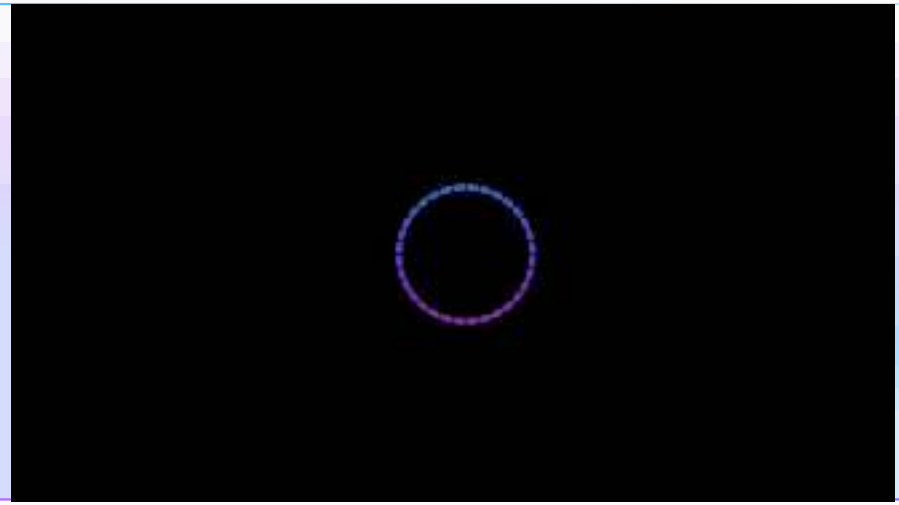
See Amazon Nova Sonic In Action

Voice-enabled business assistant



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Learn and Be Curious

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AWS Internships: https://www.amazon.jobs/en/teams/internships-for-students

AWS Skill Builder : https://explore.skillbuilder.aws/learn

Amazon's Leadership Principles: https://www.amazon.jobs/en/principles
These principles are fundamental to Amazon's culture and hiring process.

AVAILABLE AS OF TODAY

AWS SimuLearn: Generative AI Practitioner learning plan (10 hours) - FREE

SCAN ME

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Thank you!

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