Und die GPUs waren erst der Anfang: Quantum Computing wird real

Thomas Landolt
CEO QuantumBasel Corp.

Tec Forum

March 17th 2026

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Kernpunkte der heutigen Präsentation

- Erster Nutzen aus Quantum Computing gibt es bereits heute
- Die Integration zwischen Quantum Computing und AI und HPC ist wichtig
- Quanten Computer sind keine Stromfresser
- Es ist noch ein langer Weg – trotzdem muss man sich heute damit befassen

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OUR INNOVATIONS CAMPUS

uptown Basel

QAIventures

FANKHAUSER

OUR CENTRE OF COMPETENCE

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Quantum
- Optimization
- Simulation
- Time Series Forecasting
- ...

AI
- GenAI
- Neuromorphic
- Liquid
- Agentic
- ...

Quantum Computing makes the Headlines

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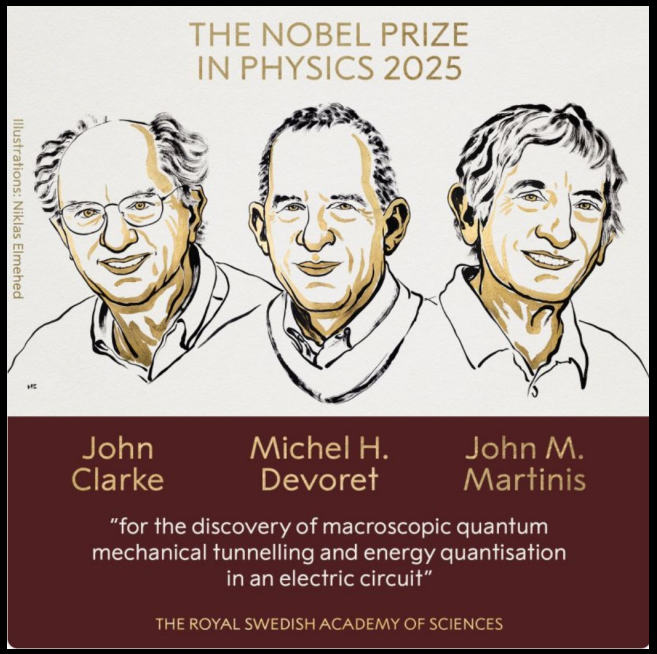
FINANCIAL TIMES

HSBC Holdings PLC + Add to myFT

HSBC claims quantum trading breakthrough

Europe's largest lender tested a tool developed by IBM on bond market data

Findings suggest quantum computing could have a significant impact on trading © Tyrone Siu/Reuters



Britain | Quantum reap

Quantum computing is getting real—and Britain wants to lead

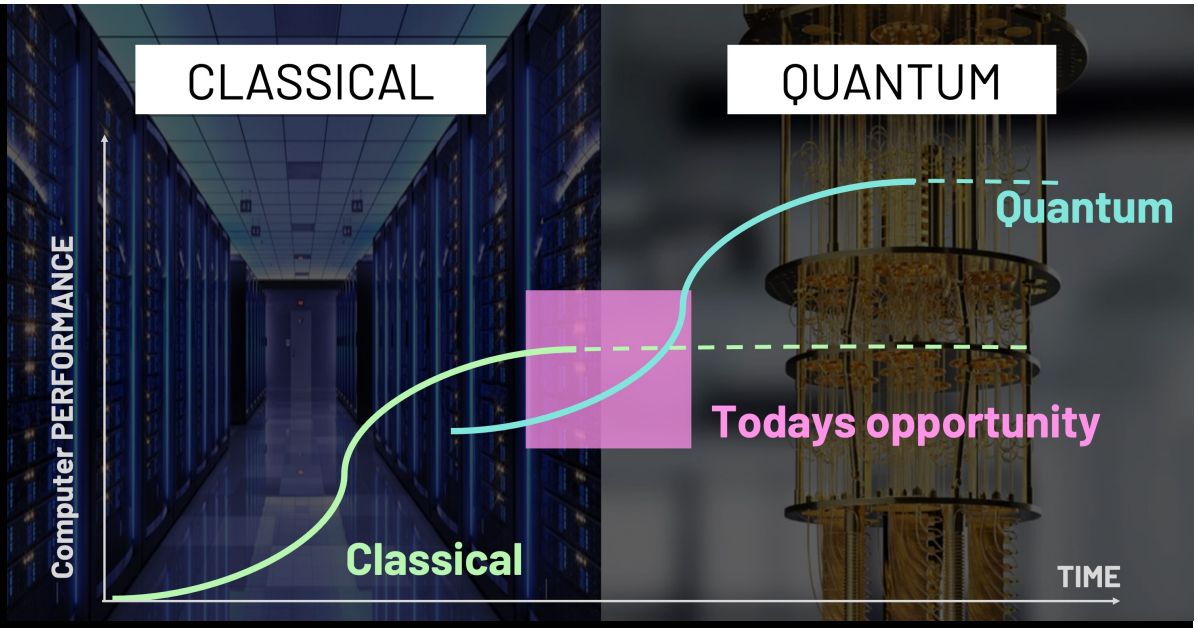
A long-elusive technology could give Britain an edge

The Economist, Nov 25

"Google claims 'quantum advantage' that promises drug discovery breakthroughs"

Quantum computing

Why now?



Classical data processing has reached its limits, quantum information technology is on the way to commercial use

Quantum computing can unlock up to $850 Billion by 2040, and early adopters will benefit disproportionately (BCG)

Significant skills gap - which must be closed now (McKinsey)

The zeitgeist frequently shifts regarding which quantum algorithms will first break through

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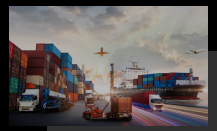
Main Quantum Algorithm Application Categories



Optimization

Machine Learning

Simulating Nature

Quantum Computers are fundamentally different

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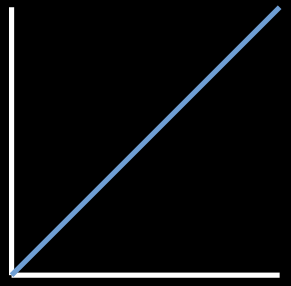
CLASSICAL

Bit

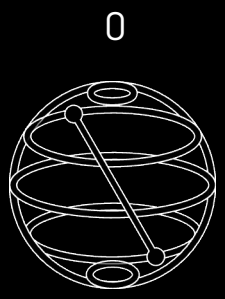
0 1



# of Transistors

QUANTUM

Qubit



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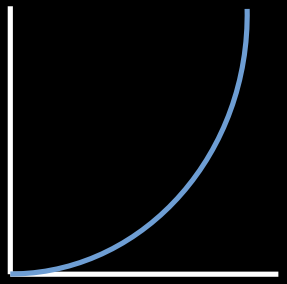

# of Qubits

Quantum Algorithms are already a (powerful) Addition to a Data Scientist's Toolbox

Why Quantum AI?

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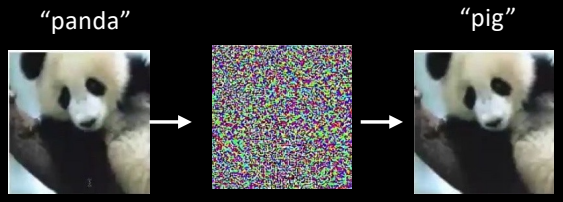
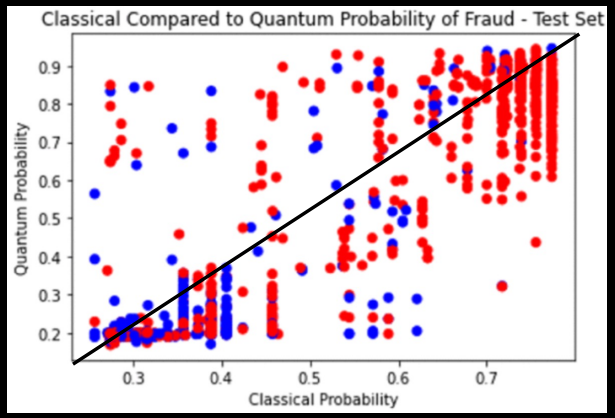
Increased AI Robustness



Up to 60% higher robustness rates

https://arxiv.org/abs/2403.05596

Uncovering Unseen Patterns



Up to 10% higher identification rates

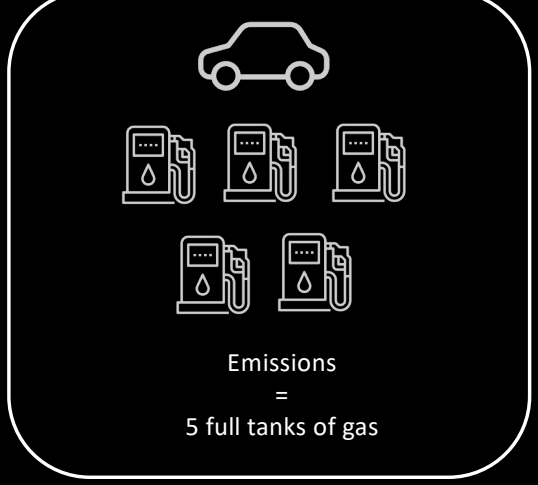
https://ieeexplore.ieee.org/document/9915517

https://www.nature.com/articles/s42005-023-01290-1

Saving Energy Costs

OpenAI o3

1 Task = 684 kg CO_2e



Source: SalesForce Estimation

Potential quantum benefits are not just about speed

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- Speed
- Accuracy
- Dealing with difficult data sets
- Security
- Energy Efficiency

Some of QuantumBasel's Projects and Collaborations

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VINCI ENERGIES HVAC quantum optimization	Hermes Quantum-enhanced delivery efficiency	MOONLIGHT AI QML in computational pathology	MERIAN ISELIN Klinik für Orthopädie und Chirurgie LLMs for emergency wards
Swiss Retail Bank Quantum applications in Financial services	Pfizer Optimization applications in pharma	Zürcher Hochschule für Angewandte Wissenschaften zh aw Quantum machine learning (QML)	CGC LLMs for genomic reports
Leitha Portfolio Optimization	n|w Fachhochschule Nordwestschweiz Quantum-enhanced NMR for molecular modelling	ARTIDIS QML in tissue analysis	XITRUST THE E-SIGNATURE COMPANY LLMs on quantum computers

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IMPROVE DESIGN AND REDUCE COSTS

HVAC OPTIMIZATION

Customer project delivered

OPTIMIZATION

VINCI ENERGIES

D-Wave The Quantum Computing Company™

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BUSINESS CHALLENGE

HOW DO WE ACHIEVE EFFICIENT NETWORK GENERATION WHILE COMPLYING WITH SAFETY AND SUSTAINABILITY REQUIREMENTS?

40% OF TOTAL ENERGY CONSUMPTION COMES FROM HVACS

27%

Reduction in duct lenght

- Maximize user comfort and efficiency
- Minimize environmental burden, fuel consumption, delivery times, and costs

Results: 27% reduction in duct length and major efficiency gains when compared with the existing ML-based approach

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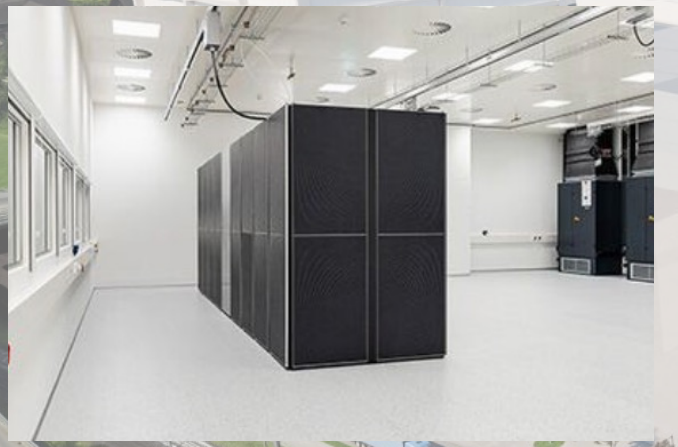
Digital Sovereign* Quantum Computing, GPU and CPU Access

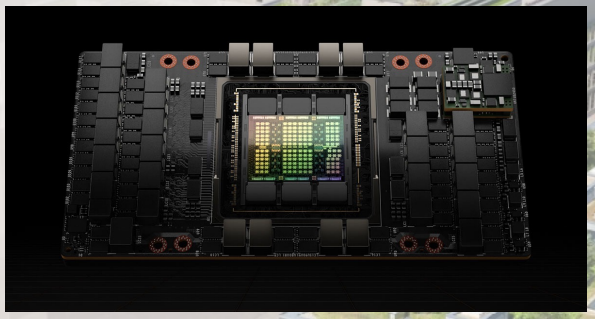
IONQ



Ion-Trap QC

36 algorithmic qubits
all-to-all connectivity
–> next system in 2027

NVIDIA



GPU cluster

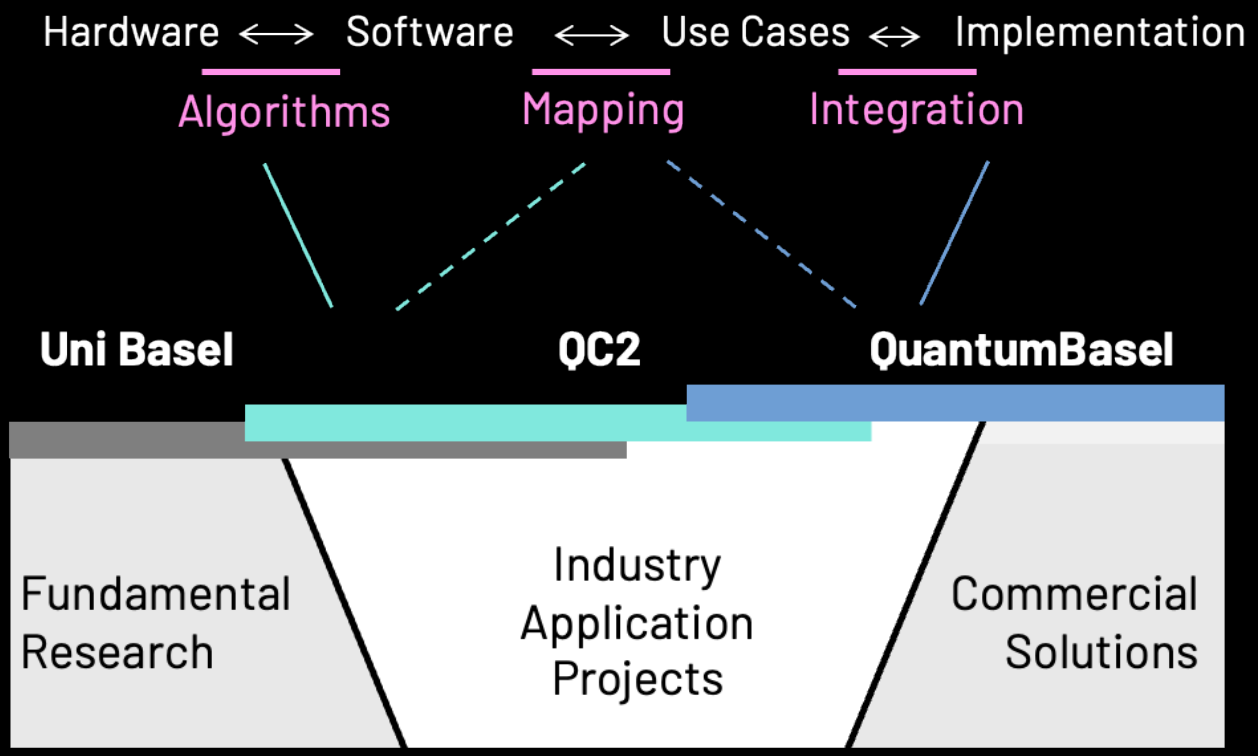
200+ NVIDIA GPU H100
80 GB VRAM -> H200

IBM

CPU

IBM Spectrum Fusion
Hyperscaler

Bridging from lab to industry



The quantum threat: Y2Q

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Connected World
95% of web traffic is encrypted

Shor's Algorithm
Finding prime factors of large integers

75 Billion Devices
will be connected to the internet by 2025

Harvest now, De-Crypt later
Storing encrypted data already today

Y2Q is Coming – Are you ready?

How to get started with QuantumBasel

Business & Technology Strategy

Workshop

1

Discuss use cases based on feasibility and business impact

Training

2

Upskill your business and technical teams

Proof of Concept

3

Proof of Technology or Proof of Concept on a specific business use case

Q & AI Project

4

Solving business problems with either AI, Quantum or hybrid Q&AI methodology

Pre-Production

5

Implementation of the business case into existing process and IT landscape

Production

6

Full-scale deployment and integration support

Technology access

ThanQ!

QuantumBasel

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for Quantum Computing and AI

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