

KEYNOTE ADDRESS

HARNESSING DIGITAL INNOVATION AND EMERGING TECHNOLOGIES FOR INCLUSIVE GROWTH AND ECONOMIC RENAISSANCE

Computer Science and Artificial Intelligence in the Angstrom Era
July 27-30, 2026

Delivered by Sonny Iroche. PGDIPAI (Oxon)

Annual Conference of the Nigeria Computer Society (NCS).

President of the Nigeria Computer Society, distinguished guests, fellow scholars, industry leaders, ladies and gentlemen.

It is both an honour and a privilege to stand before this distinguished gathering of computer scientists, the men and women who are designing, building and securing the digital foundations of our nation.

As someone who has spent more than four decades in banking, finance, public service and corporate governance, and who has recently immersed himself in the study and application of Artificial Intelligence at the University of Oxford, I have come to one unmistakable conclusion:

We are living through the greatest transformation in the history of computing.

Not since the invention of the transistor in 1947 has the profession witnessed such profound and far-reaching change.

Today, computer science is no longer merely about building faster computers.

It is about creating machines that can reason, learn, collaborate and, increasingly, make decisions.

That changes everything.

Only a few days ago, IBM announced something that many experts thought was still years away.

They unveiled the world's first sub-1 nanometre chip technology, ushering in what they call the Angstrom Era of computing.

Now, for many people, that announcement may simply sound like another engineering milestone.

But to those of us gathered here today, we understand that history has just moved forward.

For decades, the industry has celebrated progress measured in nanometres.

From 90 nanometres...
to 45
to 22
to 14
to 7
to 5
to 3
to 2

And now????

Less than one nanometre.

We are approaching the scale of atoms themselves.

Think about that for a moment.

Sometimes the greatest breakthroughs are not the biggest.

Sometimes, they are the smallest. Yet those tiny innovations reshape entire civilisations.

Throughout history, every industrial revolution has been powered by one defining technology.

The First Industrial Revolution was powered by steam engines.

The Second by electricity.

The Third by electronics and the Internet.

Today, Artificial Intelligence is powering the Fourth Industrial Revolution.

And at the heart of this revolution is not AI alone.

It is computer science.

Without computer scientists, there would be no Artificial Intelligence.

There would be no cloud computing.

No cybersecurity.

No autonomous vehicles.

No intelligent healthcare.

No smart manufacturing.

No digital economy.

You are no longer supporting innovation.

You are creating it.

Many people believe Artificial Intelligence is simply another software application.

I respectfully disagree.

AI represents a complete redefinition of computing itself.

For over seventy years, the computer science discipline has asked one fundamental question:

“How can we make computers calculate faster?”

Today, we ask an entirely different question:

“How can we make computers think more intelligently?”

That single shift is transforming the profession forever.

The IBM announcement demonstrates something even more profound.

For years, we were told that Moore's Law was approaching its limits.

We were told that the age of shrinking transistors was ending.

IBM has now reminded the world that innovation never truly stops.

When one path reaches its limits, human ingenuity creates another.

This breakthrough is not simply about making chips smaller.

It is about making Artificial Intelligence faster, more energy efficient, more affordable, and available to billions more people around the world.

Ladies and gentlemen,

While many people speak of an AI revolution, I see something much bigger.

I see five revolutions unfolding simultaneously.

The first is the revolution in Artificial Intelligence itself.

- ❖ Generative AI.
- ❖ Reasoning models.
- ❖ Agentic AI.
- ❖ Autonomous systems capable of collaborating.

The second revolution is in computing hardware.

- ❖ Advanced semiconductors.
- ❖ Three-dimensional chip architectures.
- ❖ Neuromorphic computing.
- ❖ Photonic computing.
- ❖ Edge AI.

The third revolution is quantum computing.

Problems that today's supercomputers may require centuries to solve could one day be solved within minutes.

The fourth revolution is robotics.

Humanoid robots are moving from research laboratories into hospitals, factories, warehouses, farms and eventually our homes.

The fifth revolution is biological computing.

The convergence of biology, neuroscience and computer science will redefine what computation itself means.

History has never witnessed five technological revolutions occurring simultaneously.

Yet that is precisely where we find ourselves today.

This changing world demands a new kind of computer scientist.

Knowing Python alone is no longer enough.

Java alone is no longer enough.

Algorithms alone are no longer enough.

Tomorrow's computer scientist must understand machine learning.

- ❖ Large Language Models.
- ❖ AI engineering.
- ❖ Data science.
- ❖ Cloud computing.
- ❖ Cybersecurity.
- ❖ Quantum computing.

- ❖ Responsible AI.
- ❖ AI governance.
- ❖ Human-AI collaboration.
- ❖ Ethics.
- ❖ Explainability.

Because the future will reward those who combine technical excellence with human wisdom.

Permit me to make what I believe is one of the most important observations of this decade.

Artificial Intelligence is not merely software.

Artificial Intelligence is infrastructure.

Without semiconductors...

There is no AI.

Without electricity

There is no AI.

Without data centres...

There is no AI.

Without fibre networks...

There is no AI.

Without GPUs

There is no AI.

Without highly skilled computer scientists

There is no AI.

That is why nations are now competing not merely for software leadership but for computing leadership.

The new currency of global power is no longer oil.

It is computational capability.

Around the world, countries have recognised this reality.

The United States is investing hundreds of billions of dollars in semiconductor manufacturing and AI infrastructure.

China has made Artificial Intelligence a national strategic priority, investing heavily in indigenous chips, research, STEM education, and industrial policy.

Europe is strengthening its semiconductor ecosystem while leading globally in AI regulation and trustworthy AI.

The Gulf States are rapidly building AI supercomputing capacity and attracting world-class talent.

India is investing massively in digital public infrastructure, AI innovation, and semiconductor manufacturing.

Every serious economy now understands that AI leadership begins with computing infrastructure.

So where does that leave Africa?

More importantly,

Where does that leave Nigeria?

My answer is simple.

- ❖ Africa must not become merely a consumer of Artificial Intelligence.
- ❖ We must become creators.

- ❖ We must build our own talent.
- ❖ Develop our own datasets.
- ❖ Strengthen our own research institutions.
- ❖ Invest in our own computing infrastructure.
- ❖ Support our own innovators.
- ❖ And participate meaningfully in global AI governance.

If we fail to do so, we risk becoming digitally dependent in the same way many nations once became economically dependent during previous industrial revolutions.

This is why I have devoted so much of my recent work to advancing Nigeria's AI ecosystem.

As a member of the National Artificial Intelligence Strategy Committee and the UNESCO AI Readiness Assessment Methodology Technical Working Group, I have seen firsthand the remarkable talent that exists across our country.

Our greatest challenge is not intelligence.

- ❖ It is coordination.
- ❖ It is investment.
- ❖ It is execution.

Nigeria has the human capital to become Africa's AI powerhouse.

What we now require is sustained national commitment.

To our universities, I offer this challenge.

Let us rethink the Computer Science curriculum.

Let our graduates leave our institutions not only as software developers but also as AI engineers, data scientists, quantum computing researchers,

robotics specialists, cybersecurity professionals, semiconductor designers, and ethical technology leaders.

The future belongs to multidisciplinary thinkers.

My dear friends,

There has never been a more exciting time to be a computer scientist.

You are not simply writing code.

You are writing history.

You are not merely designing systems.

You are designing the future of civilisation.

The decisions you make today will influence healthcare, education, finance, agriculture, national security, governance, and the quality of human life for generations to come.

Never underestimate the significance of your profession.

Let me conclude with this thought.

For more than seventy years, computer science has taught computers how to calculate.

This century, computer science is teaching computers how to reason.

But our greatest responsibility is not merely to build smarter machines.

Our greatest responsibility is to ensure that those machines help build a wiser, more prosperous, more equitable and more humane society.

The future will not belong to the countries with the largest populations.

It will belong to the countries with the greatest scientific imagination, the strongest computing infrastructure, the highest quality education, and the courage to innovate.

Nigeria has every reason to stand among those nations.

We have the talent.

We have the creativity.

We have the resilience.

Now we must match those strengths with vision, investment and determination.

Let us not merely consume the future.

Let us invent it.

Let us ensure that when the history of Artificial Intelligence is written, Nigeria will not appear only as a user of technology.

Nigeria will be remembered as one of its creators.

Thank you.

God bless the Nigeria Computer Society.

God bless the Federal Republic of Nigeria.