CES Download: Digital Storage and Memory and IEEE at the CES

Tom Coughlin, 2024 IEEE President & CEO at IEEE

President, Coughlin Associates

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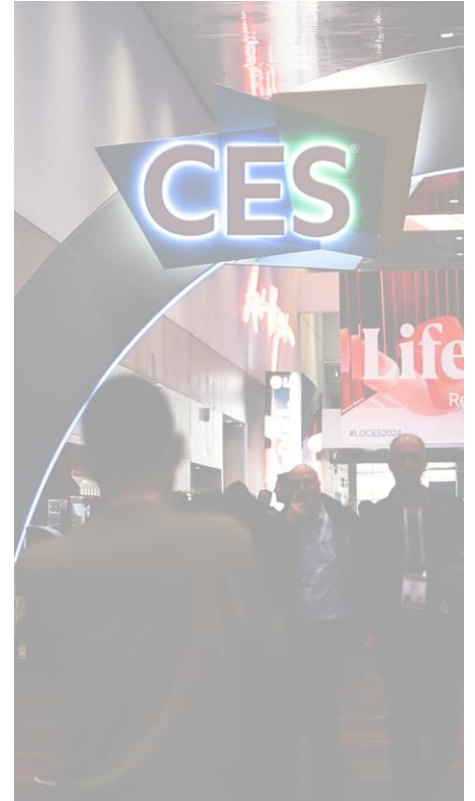
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IEEE
Advancing Technology for Humanity

IEEE Rising Stars

▸ 2024 was the 10th anniversary of the IEEE Rising Stars Conference

▸ Designed to attract students and young professionals, RS features sessions on career development as well as timely technical topics

▸ Rising Stars is a IEEE Region 6 Conference, held just before the CES in Las Vegas, NV

IEEE at the CES

▸ IEEE was at the IEEE Rising Stars Conference Before the Consumer Electronics Show (CES)

▸ IEEE had a booth at the CES

▸ IEEE hosted a panel on Jobs of the future with a variety of IEEE member participants

▸ IEEE.tv was in Las Vegas and recorded me as well as 2024 IEEE President Elect Kathleen Kramer walking around the IEEE and talking about the impact of technologies that IEEE members work on.

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IEEE at the CES

IEEE Booth

The Jobs of Tomorrow: Insights on AI and the Future of Work

- ▸ *How Will AI Impact the Jobs of the Future?, presented by IEEE*
  - Explore the jobs we'll see created over the next 20 years, industry's role driving innovation and the skills our future workforce will need.
  - IEEE Member and science fiction writer Jim Doty
  - 2024 IEEE President-Elect Kathleen Kramer
  - IEEE Senior Member Kayne McGladrey
  - IEEE Member Gloria Washington

Watch the full panel here: https://live.ces.tech/detail/6344813291112/how-will-ai-impact-the-jobs-of-the-future-presented-by-ieee
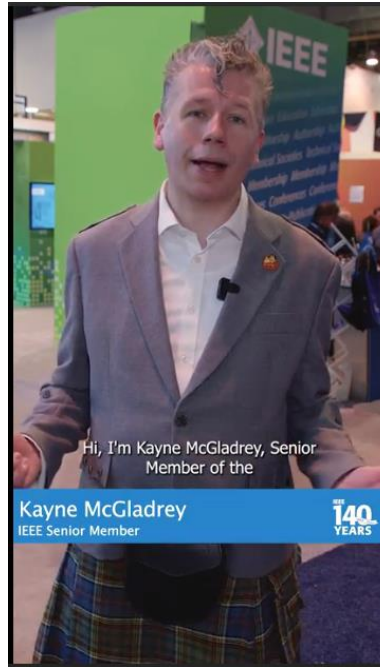
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The professional home for the engineering and technology community worldwide

IEEE at the CES

Day 2 with IEEE Member Gloria Washington

Day 3 with 2024 IEEE Senior Member Kayne McGladrey

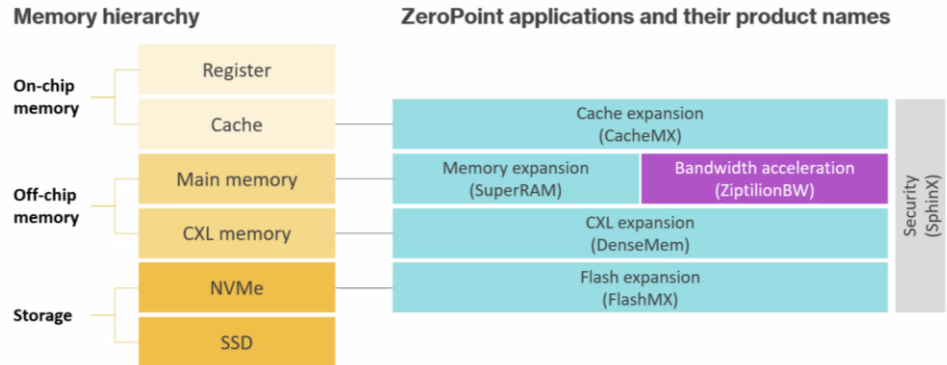**Day 4 with 2024 IEEE President-Elect Kathleen Kramer**

Digital Storage at the CES

▸ During my visit to the 2024 CES and in the weeks following I had a chance to meet with companies showing digital storage and memory and related system technologies

▸ These included Kioxia (NAND flash and SSDs), ZeroPoint Technology (CXL compression technology), Pamnesia (CXL for AI), OWC (Various storage products, esp. for creatives) and several other storage technology companies.

▸ Also there were many examples of devices using digital storage and memory technology at the CES

Kioxia

▸ Kioxia makes NAND Flash and SSDs

▸ They were showing their 218 layer NAND technology as well as a number of different SSD devices, these included

- Scalable KIOXIA BiCS FLASH™ 3D flash memory technology solutions – including
- XL-FLASH and 4-bit per cell quad-level-cell (QLC) technology
- Flash memory solutions for automotive applications – including UFS 4.0 to support the varied and evolving automotive requirements of the market
- Broad lineup of enterprise and data center SSDs – representing the latest standards, technologies, and form factors
- KIOXIA client SSDs – including KIOXIA XG8 and BG6 Series NVMe™ SSDs

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ZeroPoint Technologies

▸ This company is offering IP for lossless memory compression and compaction on CXL

▸ They say this boots memory capacity by 2-4X and bandwidth performance by 50%

▸ Data centers can see 20-25% TCO reduction

▸ Consumer devices with this technology can save on memory and have extended battery life

▸ Company is out of Sweden

Product | Hardware accelerated memory compression across the memory hierarchy

Pamnesia

▸ CXL 3.0 All-in-One Framework – Comprehensive Solution Spanning CXL Hardware and Software for Tailored CXL Development.

▸ The company's CXL-Enabled AI Accelerator won a CES Innovation Award

▸ Using a CXL 3.0 controller in the company's AI controller with a pool of memory the company was able to overcome constraints from limited memory capacity

▸ The company demonstrated their technology with AI-powered search using maximum parallelism for vector processing while designing a low-overhead host interface

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OWC

- ▸ Introduced the company's ThunderBlade X8
  - Comes in 8, 16 and 32TB capacities
  - Over 16% higher performance in RAID 4/5 redundant configurations with Apple Silicon (all M1 and later including Pro/Max Ultra) machines
  - Product focused on creatives for media and entertainment content development
- ▸ OWC also had their Jellyfish NAS storage, also focusing on higher capacity storage for M&E

Other Storage Technologies

StarDisk 20TB SSD

Synology NAS Storage

Adata was also at the 2024 CES but I didn't get a chance to visit them
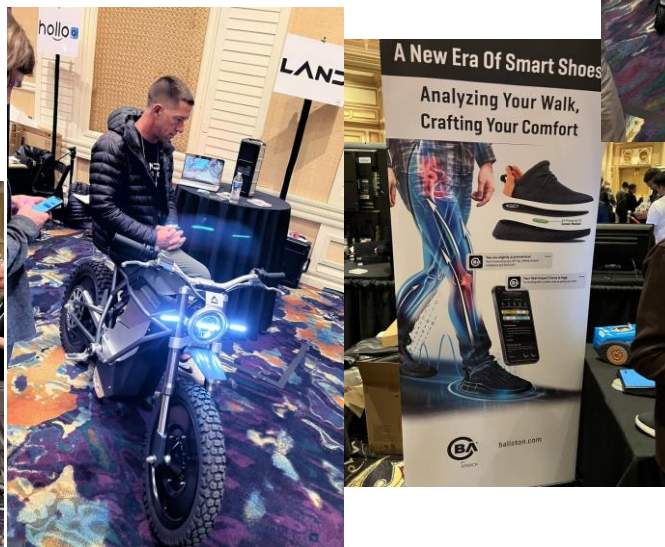
More NAS Storage

Also NXP recently announced developing automotive chips with TSMC that use MRAM for code storage—available in 2025
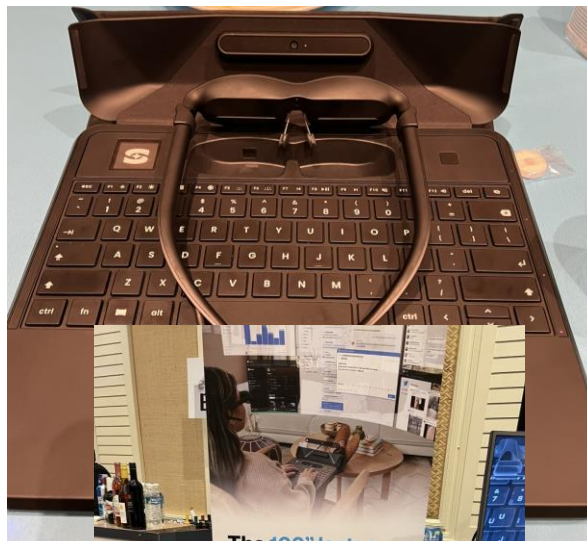
Other Things

Human Assistance

Other Things

Extended Reality

Other Things

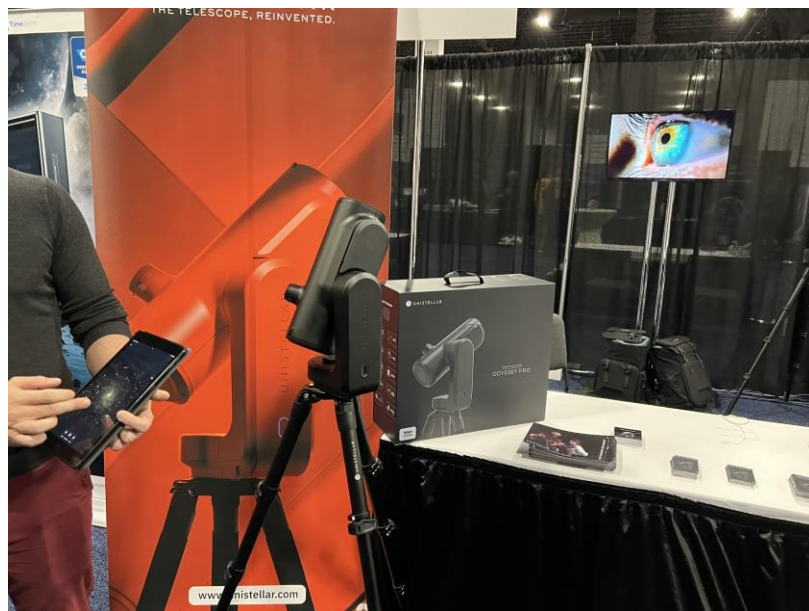## *Artificial Intelligence*

Other Things

Cooking and Drinks

Other Things

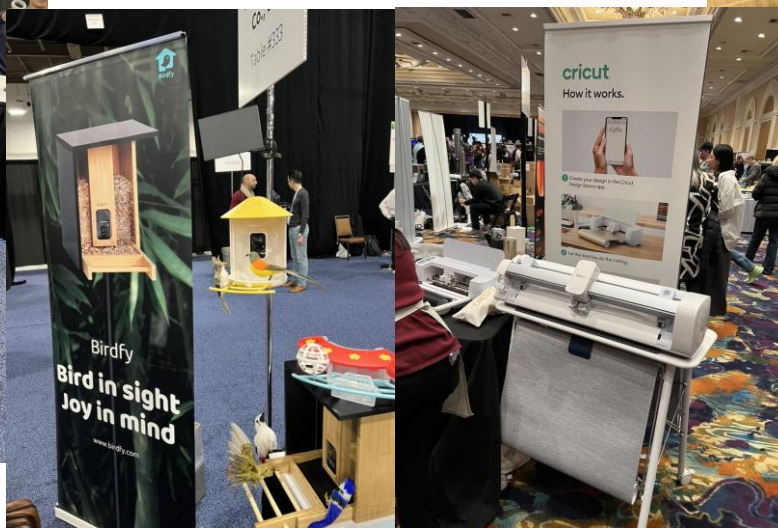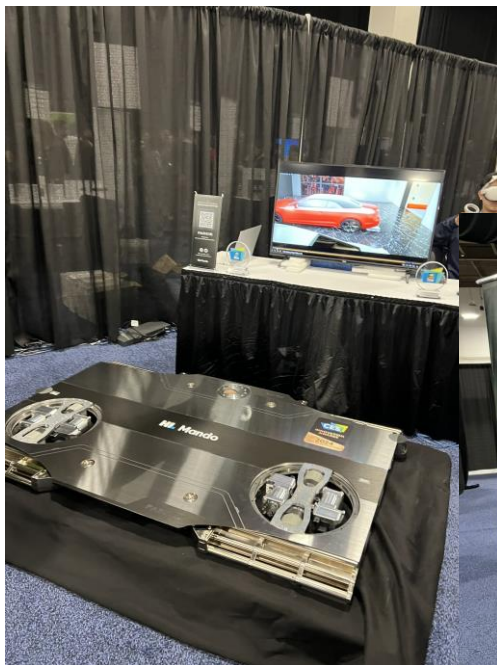*GaN*

Other Things

Power

Other Things

Telescopes

Other Things

Display and Imaging

Other Things

Odds & Ends

My Priorities for 2024

A Global and Diverse IEEE

Empowering Sections

6 Goals

Adventure into the Future

New Revenue Sources

Increased Industry Relevance

Elevated Membership Value

‣ Increase our retention of younger members

‣ Increase our engagement with industry

‣ Increase our outreach to the broader public

‣ Make investments in new products and services

IEEE

IEEE Board of Directors and other OU Activities in 2024

2024 Ad hoc Committees
- Leadership Continuity and Efficiency
- Policies and Procedures for Lists Related to Disciplinary Action
- Raising the Prestige of IEEE Awards

IEEE Strategy and Alignment Committee
- Committee on Technology for a Sustainable Climate
- Continuation of IEEE in 2050
- IEEE Strategic Plan Refresh

Task Forces
- Engaging Students and Young Professionals in Industry (led by MGA with Student Activities Committee, Young Professionals, and Industry Engagement Committee)
- Future of Technical and Engineering Education (led by EAB with support from across the OUs and external partners)
- Subcommittee on Enabling Strategic Investments and Public Imperatives (reporting to the IEEE Finance Committee)

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