



DEPARTMENT OF  
**COMPUTER SCIENCE**

TEXAS TECH  
Whitacre College of Engineering

## Every Bit Counts: Posit Computing

John L. Gustafson, Ph.D.

*Arizona State University*

Tuesday, April 22, 2025

3:30 p.m.

Zoom: <https://texastech.zoom.us/my/stas.tiomkin>

Meeting ID: 554 589 4586

Passcode: 12345

**Abstract:** For 50 years, "floating-point operations per second" (FLOPS) has been the currency of technical computing performance. But the rise of AI and the end of Moore's law have made us realize that IEEE standard floating-point (invented by Intel in 1977) is long overdue for replacement. I will present a new way to represent real numbers on computers that is both mathematically sound and follows engineering design goals. The approach can more than double speed and energy-efficiency for everything from Machine Learning to Computer Graphics to High-Performance Computing. This is a watershed, a revolution. And it is well underway.

**Bio:** Prof. John L. Gustafson ([www.johngustafson.net](http://www.johngustafson.net)) is Chief Scientist of Vq Research and a Visiting Scholar at Arizona State University. He is the inventor of several novel forms of computer arithmetic first introduced in his 2015 book, *The End of Error: Unum Computing*. He is best known for his 1988 argument showing that parallel processing performance need not be limited by "Amdahl's law," now generally known as Gustafson's law. Previously, he has been Senior Fellow at AMD and a Director of Intel Labs. He is a recipient of the inaugural Gordon Bell Prize and is a Golden Core member of IEEE.

