BIO (Long):

PETER M. KOGGE is the McCourtney Professor of Computer Science and Engineering at the University of Notre Dame, a retired IBM Fellow, and a founder of Emu Solutions, now Lucata Inc. He is a fellow of both the IEEE and AAAS, and has been a Visiting Scientist to JPL for many years. His research interests are in massively parallel computing paradigms, processing in memory, and the relationship between massive non-numeric applications, emerging technology, and computer architectures. He holds over 40 patents and is author of three books, including the first text on pipelining and an upcoming text on models of computing. His Ph.D. thesis led to the Kogge-Stone adder used in many microprocessors. Other projects included the IOP - the world's second multi-threaded parallel processor which flew on every Space Shuttle, the IBM 3838 Array processor which was for a time the fastest floating point machine marketed by IBM, RTAIS and PIM Lite - systems with significant non-numeric computation built into a memory controller, and EXECUBE - probably the world's first multi-core processor and first processor fabbed on a DRAM chip. In 2008, he led DARPA's Exascale technology study group, which resulted in a widely referenced report on technologies and architectures for exascale computing. His startup, Emu Solutions, has demonstrated the first scalable system that utilizes mobile threads to attack large-scale big data and big graph problems. Dr. Kogge has received the Daniel Slotnick best paper award (1994), the IEEE/ACM Seymour Cray award for high performance computer engineering (2012), the IEEE Charles Babbage award for contributions to the evolution of massively parallel processing architectures (2014), the Gauss best paper award for high performance computers (Int. Supercomputing Conf. 2015), and the IEEE Computer Pioneer award (2015) (Highest award from IEEE Computer Society).

BIO (Short):

Peter M Kogge is an American computer engineer and IBM Fellow. Dr Kogge has been at the forefront of several innovations that have shaped the computing industry over the past three decades. While working on his PhD at Stanford in the 1970s, he invented what is still today

considered the fastest way of adding numbers in a computer, the Kogge–Stone Adder process, an approach still used in microprocessors by Intel and other companies.

After receiving his degree, he joined the computer engineering team at IBM. During his time there, he was a co-inventor on over three dozen patents. His design of the Space Shuttle I/O processor at IBM was one of the first multithreaded computers, and the first to fly in space.

Peter was the author of the first textbook on pipelining, a now ubiquitous technique for executing multiple instructions in a computer in parallel. At IBM, he was also the inventor of the world's first multi-core processor, EXECUBE, which Dr Kogge and his team placed on a memory chip in an early effort to solve the data bottleneck problem that Lucata is solving today.

In 1994, Peter joined the University of Notre Dame as a faculty member, the Ted H. McCourtney Professor of Computer Science and Engineering. He received the **IEEE/ACM Seymour Cray award** for high performance computer engineering (2012), the **IEEE Computer Society Charles Babbage award** for contributions to the evolution of massively parallel processing architectures (2014), the **Gauss best paper award** for high performance computers (Int. Supercomputing Conf. 2015), and the **IEEE Computer Pioneer award** (2015) (Highest award from IEEE Computer Society).