Electronic System Design Alliance
2021 – 2023 Governing Council Election

Candidate Statement

Aki Fujimura

I'm a strong believer in competitors teaming together to grow the whole pie. While we each fight for a bigger share of that pie, the whole pie is competing for dollars and talent against other whole pies. Rising tide lifts all ships and pies. Except good pies don't float, so I guess that doesn't work…

I'm also a strong believer in innovation as the driver for growth. I know many believe that the growth driven by innovation is in the past for EDA, though continues for IP. There is much innovation in EDA, but the belief is that it isn't contributing to growing the whole pie, just moving shares around. I believe we are about to see the next cycle of innovation that is significant enough to drive growth in EDA software.

The ESD Alliance makes it possible for many smaller companies to make an impact on the industry and I believe that helps promote entrepreneurship along with healthy industry growth. I've been an entrepreneur since being a founding member of Tangent in my early career to being the CTO at Cadence in charge of incubators, from which D2S was born. I now sit right in the middle of the design to manufacturing handoff at D2S, helping enable curvilinear manufacturing. It's an exciting time as multi-beam mask writing, deep learning and GPU acceleration, all maturing simultaneously in the last decade to enable curvilinear shapes to be manufactured on masks and wafers. This shift is happening because manufacturing of curvilinear shapes on the mask enables higher wafer quality which is essential for the leading-edge nodes. But this transformation will also enable curvilinear design sometime in the future. I've come full circle, having invented DEF/LEF that was the first format to explicitly optimize for Manhattan designs (later adopted by OASIS too) and now looking at curvilinear manufacturing that makes no Manhattan assumption. This is but one example of a platform for innovation that can grow the pie.

This one happens to be a design-to-manufacturing example, but there are many other opportunities all throughout with the underlying driver of computing having changed its scaling dynamics drastically with single-instruction multiple-data (SIMD) computing with GPUs. This gave rise to deep learning (DL) as one example of what I call "useful waste." Today, "useful waste" is a way of thinking of the brute-force, "just do it" computing needed for DL training

that accepts that doing a lot of what seems to be wasteful computing can yield astonishingly useful results. DL is an existence proof of the potential benefit of this useful waste approach. I'm certain there are other uses of useful waste that will enable what we have been thinking as unattainable in polynomial time. I believe innovation in heavy doses will return throughout the EDA's collection of micro markets in this decade. Properly nurtured by the industry through the efforts of its industry consortium to bring top talent into the industry, to encourage new ideas and investments directed where it will help the pie grow, and effectively to publicize new wave of energy and excitement, we can accelerate this growth. I feel compelled today to help the ESD Alliance promote growth of the industry at this exciting crossroads of software, deep learning and GPU acceleration.