# About the Center for Analytic Insights

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Advancing the thought process is the key to achieving progress in solving an engineering problem. Contributors can meet, build consensus, accept action items, and report on those items at the next meeting, but success will depend on a coherent thought process behind the plans for success. Often, success will hinge on a few key insights underlying the thought process, and those end up directing the course of action. All too often, projects fail because key insights were needed to advance the state of the art, yet were missing. Managers may even have some notion that a "clever conceptual breakthrough" is needed, but don't know how to ask for that from staff--they don't know what it would look like.

I have recently (June 2016) retired from Intel Corporation after a 32-year career there, and after over 40 years since completing my Ph.D. in Electrical Engineering (for a complete bio sketch, see https://www.sites.google.com/site/esdpubs/documents/aatjmbio1.txt). As I look at patterns throughout my years at Intel, it is clear that my strongest contributions were to the thought process, and to documenting it through my publications now available at this web site, https://www.sites.google.com/site/esdpubs/documents. In my last 5-10 years, the work increasingly applied to results acquired outside of Intel as well as inside. A good example of this is the paper from 2014, co-written with Arnie Steinman (https://www.sites.google.com/site/esdpubs/documents/esd14.pdf) that applies the theory from two related papers from the previous year (esd13 and tdmr14) to Arnie's experimental data from the component handler discharge simulator [and this was after I solved a problem with the handler simulator itself, one that had puzzled users from 2006-10. Again, it was all about the thought process.]. Those kinds of connections can continue and are continuing, even in the absence of Intel as my employer.

The Center for Analytic Insights was founded primarily as a way for me to "give back" to the engineering community, in ways that continue my previous activities. For example, I can continue to review conference abstracts and journal articles, and volunteer for tasks in the ESD Association, as before. Also, there are connections between my published work and work going on elsewhere that should be noted, and that should be advanced, much as was the case with esd14 noted above. This is intended to be collaboration and consulting that, at least initially, is offered pro bono to the client. The intention is to advance the thought process for the sake of the industry, not to generate income for a consulting business. The overhead involved in supporting the thought process is fairly low, so at the moment, I can operate in this fashion.

Twenty years ago (1996), at our 25th reunion, one of my MIT classmates (whose name I've forgotten) told me at a reception, in understated terms, about how his latest activity was to help out small technology companies here and there in Massachusetts. He didn't ask for compensation, at least not aggressively, because he can afford to, now that his own startup company had been sold. Pretty neat thing for a 46-year old guy to do, I thought, and maybe I can do something similar in the future, when my Intel ride is over. At the time, Intel stock was splitting every couple of years, so I had some incentive to stay and keep up the old work ethic. Now it's 20 years later, nobody is any younger, and yet the ideas continue to

flow. In my case, they connect to others' work in semiconductor reliability and do provide some opportunities, both for me and for the potential client

Some of you potential clients, particularly those who work for large corporations, have been lectured by intellectual property (IP) lawyers about restrictions on talking to outsiders about proprietary information, and so on. But they do let you present papers at public conferences, after approval; they do let you talk to others, even competitors, at public conferences and standards meetings, and you can even correspond with university professors and other researchers without an NDA as long as you don't discuss proprietary information. Think of me in the same category as a university professor--I could be useful for advancing the thought process, irrespective of IP. The fundamentals of semiconductor reliability, ESD protection, CMOS latchup, signal integrity--in other words, anything I'm good at--go back so many decades that the fundamental thought process is quite separable from IP development. Over my 38+ years of corporate employment, I developed a pretty good "IP filter" for discussions with outsiders at universities, government, and other institutions (Bell Labs and IBM were prominent in the early years, along with universities), and I'm sure my correspondents can do the same. These days, the web search can accelerate and fill in for the networking that used to be so essential to grasping the state of the art of something--even so, a little networking can vastly advance the thought process when everyone has web search tools available.

Interacting with the Center for Analytic Insights can be as simple as sending me an email message, as below. We can decide if we need to talk or meet face-to-face (I'm in Palo Alto, CA). If we meet, it can be at the Starbuck's around the corner from me, that way I don't have to clean up my home! [Oh, if you want to see my old-fashioned kitchen in the background, here's a 2-min video from March 2016 that I made from home in place of attending my MIT 45th Reunion, at https://youtu.be/RLJjJ1CMnbY.] For the work done on esd14 with Arnie Steinman, we corresponded almost totally by email and had one meeting at a coffee shop, near Arnie's home, because I happened to be in Berkeley that day. I expect that comparable collaborations could take place in the future.

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https://www.sites.google.com/site/esdpubs/documents