

## Five Years of Design Thinking



Five years ago, I was given the opportunity to serve the Journal of Mechanical Design as its Editor. My term of service is now drawing to its close, and I am truly delighted to welcome Professor Shapour Azarm of the University of Maryland as the new JMD Editor starting January 2013. Professor Azarm is a highly respected researcher and academic with a long history of distinguished service to ASME and the design community; his leadership and our outstanding board of committed associated editors put the journal in excellent hands to continue to serve you all.

So what was it like to serve JMD and what did I learn from that experience that might be useful to others?

While I did not realize it at the time, my training in design thinking served me well as I assumed my duties. My first challenge was the desire by the mechanisms and robotics community to create a new ASME journal. Given that this community had been contributing historically about 70% of the JMD papers, a pretty big hole would appear in the JMD paper stream. So how would I solve this problem?

Design thinking of course says you never take the problem as given... So what *was* the problem? Certainly, it was not our colleagues' desire to grow in a different direction. Just like I ask my design students to do in their projects, I found myself creating the "personas" and the "user scenarios" of the JMD authors and readers... What are they like? What do they really need and want? How do we offer it to them? Answering these questions should give me some insight on what was the problem.

Indeed, the problem was JMD's identity, and by extension mechanical design's identity as a research discipline in its own right. The next step then was to identify the design attributes that the solution to this problem should possess. At that point, I realized that I was very fortunate to be surrounded by wise and competent colleagues who working with me as a team helped me to formulate these attributes and implement them in practice.

The attributes that we used to establish a clear identity for JMD look now pretty obvious: (i) define JMD as a venue promoting analysis-based synthesis, (ii) insist that design methods and design of mechanical artifacts must co-exist with mutual respect, and (iii) expand the definition of "mechanical" not just beyond the technologies of the twentieth century but also integrate the human side of design, from cognition to education and market systems.

Moving from design attributes to an actual "embodiment design" was the next step, and one that continues to this day: Assiduously reducing review times, motivating reviewers, teaching new authors how to write good papers, recruiting new associate editors, establishing our own [asmejmd.org](http://asmejmd.org) website for improved communication and branding, smoothing feathers

ruffled by rejections, and even spending lots of time getting in place the new journal cover you have received in this issue!

In my editorials over the past 5 yr, I shared many of my observations along the way. Let me just add a couple more.

All the constituents of JMD's community have maintained a strong presence, including mechanisms and robotics work directed toward synthesis; design theory and methodology research that increasingly includes human cognition; design automation that has moved beyond pure algorithms and looks at systems, uncertainty, and the impact on and from the market; transmission and gearing that has the highest downloading rates and readership from industry; design of smart products and systems that has become a sustained theme in new submissions. The annual special issues have created much interest and the one planned for 2013 on origami and tessellation in design will be very exciting. One area that remains a challenge, in spite of an excellent special issue in 2010, is sustainable design: Much discussion but too little fundamental design work.

Another observation is the geographic distribution of our authors and readers. There is a large increase of submissions from Asia, particularly China and India. Many papers from China have tended to be very analytical but with little awareness of recent research, say, in the past 10–20 yr, and with generally poor English language usage. However, their quality is improving rapidly. If these authors are able to participate regularly in ASME conferences, I expect them to become strong and sustained contributors. Many papers from India have tended to be practical design studies associated with a particular device, rather than research work. While useful, these papers do not belong to JMD. A similar situation comes from some European countries, such as Italy, France, and Spain from where I see an increasing number of submissions describing university-industry work. Less clear to me is an observed decrease in submissions from Germany and the UK. We have almost no submissions from South American and African countries. One of my goals as Editor was to have a broad diversity in our editorial board, including a geographic one. This helps to build local constituencies. I am generally satisfied with our present diversity in board composition but again this is an ongoing effort. JMD serves and welcomes the global community.

Back to design thinking, one should ask me: Ok, so do you have a good design? How do you know? Are your target users satisfied?... I will let you be the judge of that, but I am pleased to note that this year the number of submissions exceeds 500 for the first time in JMD's history.

I want to thank all JMD authors, editors, reviewers, and staff for their service to the journal and for giving me the privilege to contribute my own service to our great design community. I offer my gratitude to Shapour Azarm and to our Editorial Board with my best wishes for continuing success in their efforts!

**Panos Y. Papalambros**  
**Editor**