

## **UC Merced**

### **Proceedings of the Annual Meeting of the Cognitive Science Society**

#### **Title**

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#### **Permalink**

<https://escholarship.org/uc/item/6734m2sg>

#### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 46(0)

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#### **Publication Date**

2024

Peer reviewed

# Rapprochement, not Detente: How Cognitive Science and Industry can get back to getting along, and make each other better along the way

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**Keywords:** industry-academic relationships; cognitive modeling; applications in cognitive science

## Vision

We have a simple thesis: the relationship between academic and industry-based cognitive science is broken, but can be fixed. Over the last few decades, there has been a huge increase in the representation of cognitive science in industry. Beyond just machine learning, businesses are increasingly interested in human behavior and cognitive processes. Large proportions of our Ph.D. students, post-docs, and even faculty choose to go through a largely one-way door to corporate jobs in data science, behavioral experimentation, machine learning, user experience, and elsewhere. Currently, people who choose industry careers often lose their social and intellectual networks and their ability to return to tenure-track positions. Valuable insights from industry about memory, decision-making, learning, emotion, distributed cognition, and much more never return to the academic community. We believe that deep, theory driven, theory building work is being done in industry settings—and that the rift between communities makes all our work less effective.

It does not have to be this way. We envision a world in which the core goals of cognitive science as an intellectual trans-discipline of understanding the nature of mind remain firmly in place, but in which the boundary that currently separates work in the academy from work in industry is erased, and the best research is widely shared—whether it comes from academic or industry settings. In this world, industry-seated cognitive scientists feel a passion for giving research results back to the broader community, and academic cognitive science is prepared to receive them. In this world, academics can benefit from industry advantages in data scale, computing resources, and relevance (Watts, 2017). In this new world, career choices are well-defined, easy to explore, and reversible: people can and do move smoothly from one intellectually satisfying locus of work to another, back and forth between internships and graduate programs, post-docs, and data science roles, professorships and research teams. In this world, academic questions about language, memory, or decision-making are informed by research projects that develop new views on those same phenomena at many scales in business contexts. Industry-sited researchers have open career possibilities and can work on pure research projects as

they come up; academic communities gain access to scaled computing resources, scaled data, and relevant questions and findings from industry (Watts, 2017).

Appetite for a more connected world was clearly visible during a very well-attended symposium on 'How Should Industry Influence Cognitive Science' at the 2023 annual meeting. However, at this point it is an untested hypothesis that this reconnected world is possible, and that cognitive science (both the research and the lives of the people who create it) would be better in it. The fundamental point of this workshop will be to advance a test of that hypothesis, by bringing together people who sit close to the boundary, or even cross over, and encouraging them to share research interests, pain points, and opportunities. We will conclude by articulating a set of ideas for reconnecting communities (some discussed below) into an actionable agenda.

We are well-suited to organize this workshop, having each spent significant time in both academic and industry settings. Glushko received his PhD in 1979 at the University of California, San Diego with cognitive science pioneer David Rumelhart as his thesis advisor. Since then, he has followed a very nontraditional, non-linear, and opportunistic career path in research, applied research, technology transfer, consulting, as an entrepreneurial co-founder of three companies, as a board member for international standards organizations, and as a professor. Landy received his Ph.D. in 2007 in cognitive science, and followed a traditional academic path through a post-doc, tenure-track, and tenured faculty positions—but pivoted in 2018 to industry, where he has been a data scientist in Netflix, founded a tech startup, and owns a hair salon.

## Why the rift occurs

Some disciplines with both real-world applications and academic / theoretical value have maintained healthy, co-active cultures: machine learning (and computer science broadly), neuroscience, and chemistry are examples, with rich interactions at the research and career trajectory levels between sites. Behavioral cognitive science is not. We hypothesize several causes for the current break in the relationship between academic and industry-seated cognitive science: First and most fundamentally, we observe a breakdown in the “culture of credit”, in which work that is conducted in academic setting is seen as more ‘worthwhile’ than industry work, or in which evidence of success can

be misread across settings. For instance, changing industry jobs is usually considered a positive and career-enhancing strategy, while a sequence of short-term academic positions is viewed as a sign of failure. Publications are crucial to academic work, but are treated as less important in industry—and in fact industry-sited publications may be treated with bemusement or suspicion by academics. This encourages even prominent faculty with joint appointments to be more vocal about the academic side of their research shops. This culture also encourages industry-seated researchers to skip even attempting to publish work, leading to further estrangement. (Many academics seem to have the impression that publishing from industry is prevented by companies: from our experience, this is not generally the case, though some unique challenges do arise. In many industries foundational research is published. We believe that the strongest barriers are cultural).

A second and related problem is that transitions to industry tend to be “one way doors”—people who go to industry jobs often lose their academic connections, do not publish their work, don’t get invited to lab meetings, invited talks, symposia, editorial posts, etc, and are softly (at least) discouraged from participating in conferences. This is a shame, and creates an unnecessary professional dilemma: we all know that there are not enough post-doc positions for the appetite. While many post-docs are terrific experiences, in practice students often are forced to choose between a long path of sequential post-doc experiences, and a stint at a potentially more suitable industry job—which in an ideal world could serve as a springboard to an academic position. Similarly, many faculty may gain from an exploration of industry positions—but it can be difficult to come back. Finally, the existence of this rift can create a zero-sum-oriented, competitive mindset, in which members of these communities imagine that what is good for one community is automatically bad for the other, or in which resources must be shepherded away from the ‘other’.

We believe this is a self-amplifying pattern: students who go into industry are cut off from the academic community. As a result, they choose not to publish their work or participate in conferences. This leads to the misconception that good foundational work is not happening in industry—which in turn encourages new faculty to be less interested in the output of industry-oriented students and industry-seated researchers.

### **What the workshop will accomplish**

The workshop will create a ‘neutral zone’ for people from the edges of the existing communities to (1) share research questions and ideas, (2) discuss the challenges and values of a reunified community of scholarship comprising multiple disciplines (e.g., psychology, anthropology, education) multiple sites (e.g., academia, industry, government), and (3) to select and organize around specific plans of action. In success, it will draw participants from both industry and academia across a range of career stages interested in

understanding more about industry life and research.

Concretely, the workshop will also create alignment and accountability around next steps toward evaluating and creating a more integrated community:

1. Proposing to the society of a new conference submission type or broad topic centering industry research
2. Creating new venues for industry-sited cognitive scientists to convene and share research
3. Proposing new categories of affiliation that afford ‘split time’ that is more flexible and nuanced than most current ‘one day a week’ deals, and potential create an informed and reciprocal pipeline between academia and industry.
4. Thinking through ways to support and expand experiential learning curricula of the sort that are deeply embedded in law and business schools, but less established in many cognitive science curricula. Some ideas will include a ‘cognitive science speakers bureau’ of industry folks ready and willing to present, connect, and talk with students; and a ‘matchmaking list’ of potential internships.
5. Other proposals from the audience.

Our goal will be to evaluate the promise and feasibility of these directions, and create an action plan that can advance the most promising.

### **How the workshop will do it**

This half-day workshop will be split into three sections:

1. 15 minute research presentations from industry-sited cognitive scientists presenting problems they face and discussing solution approaches: Speakers will include Melody Dye (Netflix), Ed Vul (Amazon), Eliza Kosoy (Google & Berkeley), and Abhijit Mahabal (Pinterest), L. Elizabeth Crawford (Google).
2. One hour consisting of a panel discussion on the topics discussed above. The panel will contain about 5-6 members, crossing early, mid, and late career stages, from a variety of academic/industry backgrounds. The panel will include Ruairidh Battleday, Daniel Yurovsky, Robert Glushko, and Derek Powell, along with several speakers from the first session.
3. 90 minutes of conversation, alignment, and resolution regarding next steps toward fostering the development of an integrated multisite community, moderated by David Landy.

### **Acknowledgments**

Thanks Doug Bemis, Nick Chater, Peter Dayan, Kiran Kumar, Michael Lee, Paul Maglio, Paul Smolensky, Jim Spohrer, and Leor Zmigrod for comments on this proposal.

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