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# Introduction to Special Issue: Artificial Intelligence, Technology, and Negotiation

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This issue of *Negotiation Journal* is dedicated to the theme of artificial intelligence, technology, and negotiation. It arose from a Program on Negotiation (PON) working conference on that important topic held virtually on May 17–18. The conference was not the first time that PON ventured into these waters—in 1994, PON hosted a conference on computers and negotiation that generated several papers for the Journal's April 1995 issue.

Some of that early work anticipated challenges and opportunities that are still with us today. Apps and systems to support negotiators were discussed. In one article, Melvin Shakun laid out design criteria for software to help parties reframe bargaining issues and options in light of their underlying values and interests. In a similar vein, William Samuelson described how software might build on economic theories of sequential bargaining. Marc Kilgour, Liping Fang, and Keith Hipel presented their Graph Model for Conflict Resolution (GMCR) for constructing a strategic map of negotiations as offers and counteroffers are exchanged.

Also, in the April 1995 issue, David Sanders and Roy Lewicki wrote enthusiastically about the prospects for using computer-based simulations in the classroom. Richard Shell's piece described an innovative program he developed with Arvand Rangaswamy. It used conjoint analysis to calculate implicit, conditional trade-offs among a set of issues. When job hunting, for example, you might set a higher minimum salary for working in a more expensive or less attractive city. There is still valuable work to be done in this realm.

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Technology has evolved dramatically since the 1990s, changing the way we work, study, create, socialize, and shop, in perhaps unexpected ways. A recent *Consumer Reports* survey of 60,000 readers reported that they were more likely to bargain when they purchased online rather than shop in bricks and mortar stores (Befute 2018). Some large companies now use automated bots to do the first round of interviews for job applicants (Moran 2018). As for researchers, with big data getting ever bigger, there is a growing trove of real-world information to be mined. Exhibit A: One study of a half a million sales calls revealed that the top performers at closing deals asked prospects considerably more questions than did their less inquisitive colleagues (Brooks and John 2018). Then there's Exhibit B: In another study a researcher found that people who are nice and polite on platforms like eBay tend to get worse results (Jeong et al. 2019).

There's also the growing library of apps designed for classroom use. Some are analytically oriented while others enable the students to polish their interpersonal skills. Mursion, a California company, has developed virtual reality simulations to polish interpersonal skills often vital for negotiation success (see <https://www.mursion.com/>). Online negotiation courses have blossomed, especially after the COVID-19 crisis.

The consequences of some of these developments are likely benign. Others may even be constructive and empowering, though deciding who is benefited isn't always an easy call. Yes, when you're haggling online with a salesperson or a chatbot (which is increasingly common), you now have the luxury of comparison-shopping in real time by checking out other sellers' prices. Then again, the sellers now know more about you, your buying habits, and what's in your wallet. (Some retailers vary their prices according to your zip code and what browser you're using.) As you will shortly see, other new technologies are worrisome at the very least. For a time, Airbnb required hosts and guests to post personal photos in hopes of building mutual trust and confidence. As it turned out, though, the policy inadvertently made it harder for people of color to get bookings (Fisman and Luca 2016). Still other developments verge on the sinister.

Full disclosure. For better or worse, I'm not a detached observer. I'm an enthusiast overall with some experience in this realm, having developed two fully online negotiation courses (pre-COVID-19). I've also created computer-based exercises for instructional use and have designed a self-assessment/best practice app to promote self-reflection and ongoing learning. Readers should keep that in mind as they assess my observations that follow.

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All of us, whether working in this area or not, are left to wonder what's yet to come. It was years ago that Deep Blue beat world chess champion Garry Kasparov. Now perhaps even more impressively, IBM's artificial intelligence-based Project Debater has the capacity to craft and voice compelling arguments and improvise powerful rebuttals (see <https://www.research.ibm.com/artificial-intelligence/project-debater/>). Is a better-than-human negotiator on the near horizon? If so, should we welcome it or run for cover? Some omens are concerning. A simple AI-based negotiator that Facebook built taught itself how to lie and cheat (Clark 2017).

Given these developments in multiple contexts, the PON convened the May 2020 conference, which my colleague Jim Sebenius and I co-chaired. Reaching out to prospective presenters we sought to bring together people from a variety of professional backgrounds who were undertaking a wide range of projects. Scholars, teachers, computer scientists, and businesspeople were invited to share insights about the present state of this domain and where it may be headed.

Most of the participants work in the intersection of negotiation and computer science, though most are grounded in one of those fields or the other. The goal was sparking further collaboration across fields and disciplines. This special issue of *Negotiation Journal* grew out of the conference. A half dozen informative and provocative articles follow. Each is valuable in its own right. Together they provide a mapping of the landscape.

The conference was in the works for more than a year. It was originally intended to be a two and a half day in-person event, where the formal presentations and discussions would be complemented by impromptu chatter during meals and breaks. When COVID-19 restrictions were put in place in March 2020, we had to move to a virtual platform. (Just desserts you might say, given our topic.) The downside was that we had to limit participation in order to have real engagement on the platform. The good news, though, is that Zoom videos of all seven sessions are freely available on the PON website.<sup>1</sup> We encourage you to sample them.

As the network grew, the scope of the event expanded as well. In the end, we had seven 90-minute sessions, reserving time for discussion for all the participants to jump in. As we had hoped, there was plenty of fruitful cross-pollination. The sessions and presenters were as follows:

- Session A: State of the Art with Ehsan Hoque, Sandy Pentland, and Jonathan Gratch

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- Session B: Technology and Negotiation—Lessons from Online Dispute Resolution with Ethan Katsh, Leah Wing, Janet Martinez, and Colin Rule
  - Session C: The Potentially Critical Roles of Social Media in Negotiation with James Sebenius, Alvaro Renedo Zalba, Cathryn Clüver Ashbrook, Ben Cook, and Isaac Silberberg
  - Session D: New Insights into Negotiation’s Psychological Processes with Alison Wood Brooks, Juliana Schroeder, and Michael Yeomans
  - Session E: Technologies that Enhance Students’ Learning of Negotiation with Jeanne Brett, Chris Dede, Emmanuel Johnson, Kristjan Korjus, Samuel Dinnar, and Carrie Straub
  - Session F: The Evolving Marketplace with Hyunjin Kim, Beibei Li, and Michael Luca
  - Session G: Social and Cultural Impacts and Implications with Sameer B. Srivastava, Jeff Hancock, and Diyi Yang

As different as those topics might seem, it was gratifying to hear certain common themes that emerged across almost all the panels. At the top of that list was ethics: who is helped and who may be hurt by various technologies. That was the core of the concluding session, as you can see, but the question came up across the board. We are grateful to all the authors for generating these articles—on a tight schedule. Their contributions surely will inform future work in this domain.

We deeply appreciate the support of Guhan Subramanian, chair of PON’s Executive Committee, and PON Managing Director Susan Hackley. And a deep bow to Lara San Pietro, who coordinated the whole project. With the clock ticking, she deftly transitioned us from hosting an in-person event to one in which we worked together virtually.

## Articles in this Issue

The issue begins with two pieces from the State of the Art panel that opened the conference. Jonathan Gratch’s “The Promise and Peril of Automated Negotiators” delivers on its title. Jon describes the rapid development of AI-based “agents” that can directly negotiate with people in humanlike ways. The promise lies in how these agents could secure better outcomes for people who are reluctant to negotiate. Gratch cites studies showing that unwillingness is widespread, especially among women and minorities. (And some of that unwillingness is prudent.<sup>2</sup>) The peril, though, lies in the fact that some of these agents learn how to lie and take advantage of others.

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Complementing that article is Raiyan Abdul Baten and Ehsan Hoque's "Technology-driven Alteration of Nonverbal Cues and its Effects on Negotiation." The authors similarly see promise and peril, in this instance involving technology that can alter—in real time—video communication. (Such technology was used in the movie "The Irishman" to make Al Pacino, Robert De Niro, and Al Pesci look and move like they were in their twenties; see Hill and White 2020.)

So, how could such technology be used in negotiation? Imagine someone stricken with Parkinson's seeking a job. He could be otherwise fit and sharp mentally yet be understandably concerned that his tremor might give a prospective employer doubts. Would we fault the applicant for cloaking his ailment using this technology in the interview process?

Raiyan and Ehsan explore the implications for more dramatic alterations—shifts in gender or race, for example. Would those uses fall into the perils category? Then there are the "deepfakes," wholly machine-generated creations that look and sound like a real person. In a heated dispute such a figure could be constructed to malign an adversary's character, forcing her to deny something that she never said or did.

A more optimistic note is struck in "Designing Ethical Online Dispute Resolution Systems: The Rise of the Fourth Party" by Leah Wing, Janet Martinez, Ethan Katsh, and Colin Rule. The authors describe how opening up the Internet to commercial activities in 1992 inevitably created a new environment for sparking disputes. As business boomed on eBay and similar platforms, squabbles exploded between unhappy buyers and sellers. Bad news? Yes, for those particular people, but the fact that these difficulties developed online illuminated the possibility of online solutions. This may explain why developments in online dispute resolution (ODR) came sooner than has technology for contracting and deal-making.

The "fourth party" in the title refers to the technology that assists third-party mediators. The authors remind us that apps for managing disputes have been around for quite a while and work in this domain continues. The article also lays out how the elements of dispute system design (goals, stakeholders, process options, context, and resources) can serve as the architecture for further development. Just as in the Gratch article, though, these authors likewise raise a caution flag when it comes to creating agents that would take full control of settlement talks. "The lack of transparency of AI usage can, at a minimum," they note, "raise concerns and erode trust or further trench a lack of trust in courts and other forms of dispute resolution."

Next in the issue is "Artificial Intelligence and Technology in Teaching Negotiation" by Samuel Dinnar, Chris Dede, Emmanuel Johnson, Carrie

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Straub, and Kristjan Korjus. The article reflects the broad experience of its diverse team of authors: academics, entrepreneurs, and techies. Together they explore technology that improves the ways people negotiate and learn to negotiate. For students there are apps that enable them to practice specific interpersonal skills and get personalized feedback, and computer-based exercises in which they can test alternative strategies or compare their performance with others in their class. For faculty there are platforms that handle the administrative work of distributing simulation roles, compiling results, and quickly producing slides for classroom use.<sup>3</sup> The authors also explore technology—current and forthcoming—to support ongoing organizational learning through identifying, updating, and sharing best negotiation practices.

Next, Cathryn Clüver Ashbrook and Alvaro Renedo Zalba address negotiation on a still larger scale in their “Social Media Influence on Diplomatic Negotiation: Shifting the Shape of the Table.” The authors analyze two complex cases to demonstrate how social media can trigger tectonic shifts in the political landscape. One example is the failed Transatlantic Trade and Investment Partnership, proposed in 2013. The other, in early 2020, involved fallout from a controversial ruling by a high German court that effectively nullified, for that country, an earlier judgment by the EU Court of Justice.

In both instances seemingly powerful groups paid mightily for failing to take into account how social media was tilting the political landscape. The authors observe that both cases are examples of “failures of government structures to imagine the breadth and scope of counter-organizing social media, and to adequately anticipate their magnifying effect, with such failures effectively prompting diplomatic action.” Even veteran negotiators—maybe especially veteran negotiators—can fall into the classic trap of “fighting the last war.” Constant vigilance and agility are essential given the speed of communication (and disinformation) these days.

Wrapping up the collection is “Dealmaking Disrupted: The Unexplored Power of Social Media in Negotiation” by James K. Sebenius, Ben Cook, David Lax, Ron Fortgang, Isaac Silberberg, and Paul Levy. The article enriches the third element of the 3-D model of negotiation analysis developed by Jim and David (Lax and Sebenius 2006). The first dimension is tactics at the bargaining table (the exchange of offers and counteroffers; threats and promises). The second is deal design, the artful creation and capture of value. The authors’ focus here is on the third dimension—setup—which moves away from the table to build support and create the conditions for a favorable outcome. With case examples, the authors illustrate how social media enables proactive negotiators to learn about their counterparts’ interests, perceptions, and alliances. Macro and micro mapping the political terrain is essential in dealing

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with public, multi-stakeholder controversies. But ultimate success also requires preemptive use of online platforms to build alliances and neutralize attacks. Amid all of this, privacy and ethical issues arise here, as well.

The Program on Negotiation will continue to play an active, convening role in this realm. The hope is to support ongoing exchange across disciplines and fields, bridging theory and practice. We wish, as well, to benefit from the insights and experiences of teachers, researchers, and practitioners from beyond the United States. And as is fitting given our subject, much of this activity will be facilitated by computer-based technology, which continues to advance.

### NOTES

1. Videos of all the conference sessions are available at <https://www.pon.harvard.edu/teaching-materials-publications/working-conference-on-ai-technology-and-negotiation/>, where you may also find descriptions of all the sessions.
2. See Christine Exley's research on potential risks for women when they advocate for themselves (Exley, Niederle, and Vesterlund 2020).
3. See, for example, the PON Library of Enhanced Simulation Teaching Packages, available via iDecision Games at <https://idecisiongames.com/simulations/partner/4336d942-76ac-4be7-b509-a1a9f929a4d7?premium=true>. Each enhanced simulation package includes an in-depth guide for instructors on negotiation concepts, simulation logistics, and simulation debriefing; background reading lists for both students and instructors; pre- and post-simulation surveys on key learning points that produce live data analytics; and a class PowerPoint presentation for introducing key concepts before the simulation and debriefing with participants.

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