PRESIDENT'S EDITORIAL

JOURNAL OF
FORENSIC SCIENCES

Facing the future: Technology and "advocacy" at the American Academy of Forensic Sciences

Christopher R. Thompson, 2024-25 President
American Academy of Forensic Sciences

EDUCATION OF POLICYMAKERS AND THE PUBLIC

The American Academy of Forensic Sciences (AAFS; Academy) has a several-decade history of governmental education and outreach and an even longer history of public engagement around varied subspecialties of forensic science. This stands in contrast to some other forensic science and forensic medicine organizations that have (historically) generally shied away from this pursuit. Most of the Academy's activities in this arena have been via the Consortium of Forensic Science Organizations (CFSO; see later in this article for more information), though the Academy has on occasion weighed in on federal appellate cases via its Judicial Action Committee. AAFS's position on the education of policymakers and the public is clearly articulated in the organization's letter to the USDOJ in 2017, which noted:

> "Our mission is to provide leadership to advance science and its application to the legal system. Representing all 50 states and 70 other countries worldwide, the 6,638 members of AAFS are forensic science or legal practitioners who improve the understanding of forensic science by criminal and civil justice practitioners, policymakers, and the public through education, dissemination of research in forensic science, and public engagement. We encourage other groups, agencies, and organizations to collaborate with us to advance forensic science and its use in the legal system." [1]

Most scientific organizations assiduously avoid using the term "advocacy" to describe their activities in order to avoid being perceived as biased or partisan. This is understandable given the general connotation of the word. However, "advocacy" has a potentially broad range of meanings. In its most extreme form, it could involve organizations (or their individual members) endorsing controversial positions, particular political parties, or even specific candidates.

With regard to this endeavor as it relates to forensic science organizations in general, however, it generally has focused on an educative process for policymakers (e.g., the judiciary, legislatures, executive/administrative/regulatory agencies) and the public (e.g., interested individual citizens, the news media). The goal of this process has been to keep these entities and individuals apprised of existing scientific principles, new research and developments, and practical matters related to the practice of forensic science. Armed with this information, these entities can make well-informed decisions about regulations, legislation, and specific cases (among other things) involving various aspects of forensic science. Consequently, AAFS's process of education of policymakers and the public can accurately be described as "advocacy." However, in this process, we are not advocating for a specific outcome or outcomes, but rather for sound processes, both from an ethical and scientific standpoint. In some cases, we may advocate for continued or additional resources to support the continuation, development, and/or implementation of such sound processes.

Forensic science organizations (and professional organizations in general) may engage in governmental and public advocacy for several reasons. One may be altruistic, in that having policymakers (and the public) with a greater understanding of forensic-science-related topics leads to a more just society. The second is more pragmatic, and based on serving members' needs as practice conditions change, through regulatory, legislative, judicial, and economic mechanisms. With regard to the latter, recent examples of such changes include:

- Over the past 10 to 15 years, standards development organizations (SDOs) and other entities (including the USDOJ) have developed

and implemented and will be continuing to develop and implement forensic science practice standards, in part via SDOs. Most, if not all, forensic science practitioners will be subject to standards in their area of specialty. AAFS has been quite involved in this process and founded the Academy Standards Board (ASB) in 2015.

- In June 2024, the Supreme Court of the United States (SCOTUS) issued a decision in the case of *Smith v. Arizona* [2]. The case involved a defendant's Sixth Amendment right to confrontation of witnesses, as it pertained to cross-examination of crime lab employees. The decision has had and will have significant "real-world" implications for basic operations in crime labs and other forensic science work settings.

Lastly, and incredibly importantly, our society is seeing exponential, revolutionary advances in technology. Some of these are impacting and will impact almost every vocation, as well as society as a whole (e.g., artificial intelligence), while others may have more targeted effects (e.g., forensic genealogy, risk assessment algorithms, use of fMRI in forensic psychiatry). In part because of the magnitude of the ramifications of these technologies' impact on forensic science, I strongly believe AAFS has an obligation to advise policymakers about the appropriate implementation and use of these technologies, in both legal and other forensic science-related settings. Additionally, because these technological advances likely will tremendously affect the day-to-day practice of almost all subspecialties of forensic science, it would be wise for AAFS (and its members) to monitor closely the development and implementation of these innovations. This will help the Academy and its members remain professionally competent and "up-to-date" with current practice standards.

For the aforementioned reasons, AAFS should embrace a relatively broad educational mission and vision, one that includes not only its members but also governmental entities and the public. Obviously, this "advocacy" should only involve select matters about which AAFS and its members have collective and individual expertise and, perhaps, unique perspectives. In addition, our input must be guided by the existing scientific literature, the Academy's aggregated knowledge and experience, and, in some situations, pragmatic workforce concerns. In this process, we must be candid in acknowledging the limits both in our expertise and in the scientific literature. But perhaps most crucially, the Academy must ensure that during this process, which may at times include vigorous, healthy debate, our membership does not become permanently fractured. I believe we can accomplish this goal by focusing on the goal of advancing understanding of various subspecialties of forensic science and practice-related issues rather than endorsing specific ideological viewpoints.

UNIQUE EXPERTISE

The AAFS is the pre-eminent forensic science organization in the United States, and probably the world. Although other forensic science professional organizations also operate at the intersection of science/medicine and the law, AAFS is unique in that it represents practitioners from across the forensic science community, and therefore has a broad range of expertise. Additionally, its and its members' views are informed (and sometimes beneficially tempered by) interactions with members of other sections, which helps it (and us) see the forensic science landscape more fully.

AAFS has over 6000 members, who hail from every state in the United States, a host of other countries, and a wide variety of areas of expertise. AAFS consists of 12 sections that collectively represent practitioners from across the forensic science community. Plainly, AAFS has, through its members and their affiliations, an incredible wealth of knowledge of the forensic sciences and the interplay of different forensic science subspecialties.

Policymakers from every branch of the federal and state governments are grappling with how to address issues related to forensic science, particularly regulatory and quasi-regulatory standards, as well as the implementation of new forensic science technologies that are coming online now or in the near future. Given the stakes, it is not surprising that they are actively seeking organized forensic science's input on multiple aspects of these concerns.

CURRENT PRIMARY MECHANISM FOR AAFS'S EDUCATION OF POLICYMAKERS

The Consortium of Forensic Science Organizations

AAFS was a founding member of the Consortium of Forensic Science Organizations (CFSO), which is an association that was established in 2001 and is currently comprised of six forensic science professional organizations, though other organizations have been members of the CFSO in the past (e.g., the American Academy of Psychiatry and the Law (AAPL), the International Association of Forensic Toxicologists (IAFT)). At present, its members include the following organizations: the AAFS, the American Society of Crime Lab Directors (ASCLD), the Society of Forensic Toxicologists (SOFT), the National Association of Medical Examiners (NAME), the International Association for Identification (IAI), and the International Association of Coroners and Medical Examiners (IACME). According to the CFSO's website, member organizations endeavor to "speak with a single forensic voice in matters of mutual interest to its member organizations, to influence public policy at the national level and to make a compelling case for greater federal funding for public crime laboratories and medical examiner/coroner offices. The primary focus of the CFSO is local, state and national policymakers, as well as the United States Congress." [3] Because the CFSO represents organizations that have (collectively) tens of thousands of members, the importance of its messages related to forensic science are amplified. An additional benefit of having a six-member association is that AAFS's annual CFSO dues are significantly defrayed (because costs are shared equally among the member organizations).

The CFSO works hand-in-hand with an essentially full-time legislative advocate in Washington, D.C., Beth Lavach. Ms. Lavach is

well-connected, seasoned, and incredibly knowledgeable about matters pertaining to forensic science. She has been a conduit via which the CFSO's member organizations (including AAFS) can provide input to legislators and administrative agencies on issues of importance to the forensic science community, and to society at large.

In addition (and in large measure because of the efforts of Ms. Lavach and other CFSO Board Members), the CFSO has existing relationships with multiple executive agencies and departments (e.g., the USDOJ), National Governors Association (NGA), and the National Association of Attorneys General (NAAG), all of which obviously are important policy-influencing entities.

RESPONSIBLE IMPLEMENTATION OF NEW TECHNOLOGIES: SCIENCE FICTION BECOMES FACT

Over the past 100 years, many authors have described a dystopian future based on technology's negative impact on society. Huxley, Orwell, Asimov, and others have predicted grim futures for our species. Hollywood, too, has offered similar visions for the next century of humankind, with innumerable films about technology's potentially negative impact on the world as we know it, *Bladerunner*, *Gattaca*, and *Ex Machina* to name a few. Thankfully, these futures have not yet (at least fully) come to pass.

In the past ten years, a new author has started to raise alarm bells regarding the near-term, very troubling potential impact of technology on various aspects of our lives. Yuval Harari PhD, an Oxford-education Professor of History at Hebrew University of Jerusalem, has written extensively about this topic, in books such as *Homo Deus* (2017) [4], *21 Lessons for the 21st Century* (2018) [5], and *Nexus* (2024) [6] and in magazine articles, including *Why Technology Favors Tyranny* (2018) [7]. Harari also has been a regular on the talk show circuit (e.g., *Real Time with Bill Maher*) and is, strangely, a Silicon Valley darling, despite the somewhat dark future he paints and the degree to which he, mostly tacitly, holds technology companies accountable for this potential future.

In his work and during his appearances, Harari makes the case that the exponential speed at which new technologies are being developed, refined, and deployed may render our society almost unrecognizable in the near future. He also argues that AI and biotechnologies may erode the practical advantages of western democracies (i.e., information decentralization) and ultimately advantage authoritarian regimes. Specifically, Harari examines the effects on our society of (among other things): artificial intelligence (AI) and automation; the increasing use and importance of algorithms; these algorithms being able to predict our desires and subsequent behaviors with increasing accuracy; the growing importance of artificial vs. human intelligence; and the "myth of free will" (based on neuroimaging studies, among other things) [3].

In contrast to prior authors' depictions of a disturbing, fairly distant future, Harari's predicted technological revolution seems much more imminent, both because of technology's exponentially increased rate of change (see ChatGPT, machine learning) and because many of his predicted outcomes are already beginning to be seen. This can be demonstrated by advances of relevance (in particular) to the Psychiatry & Behavioral Science Section:

- AI has been offered as a potential way to improve and expedite the process of violence risk assessment [8]. What are the ethical and practical considerations around the use of this technology for this purpose? How intrusive should the process be permitted to become (e.g., access to different data sets) in order to reduce the risk of future harm or crimes, without evidence of current harm or crimes?

- According to a study published in the *Proceedings of the National Academy of Sciences* in 2015, computer-based personality judgments (based on analyzing specific numbers of Facebook "likes") were more accurate than those made by acquaintances, friends, family members, and even spouses, depending on the number of "likes" analyzed [9]. Can clinical and forensic science apply these algorithms in a meaningful way? If the findings are applicable and accurate, in what situations can we utilize this sort of process to improve (or even take the place of) our evaluations, both forensic and clinical? What will be the impact of AI and machine learning on the predictive power of these algorithms, assuming these vastly expand the number of data points that can be analyzed?

- Multiple functional MRI studies have found evidence that our decisions actually may be determined up to ten seconds prior to these decisions reaching our conscious awareness. How does that impact our understanding of free will, culpability, and punishment?

Numerous other technological advances are applicable to other sections of the Academy, notably Jurisprudence, Criminalistics, and Digital & Multimedia Sciences. For example:

- Development and use of forensic genealogy databases (Criminalistics, Jurisprudence)
- Use of deep fakes and AI in elections (Digital & Multimedia Sciences (DMS))
- Computer-based personality judgments (Psychiatry & Behavioral Science, DMS)
- Use of social media/etc. for crime investigation (Criminalistics, DMS)
- Utilization of AI evaluators (Psychiatry & Behavioral Science)
- Leveraging AI for data extraction (Jurisprudence, Psychiatry & Behavioral Science, DMS, other sections)
- Predicting post-mortem interval (PMI) more efficiently (Pathology/Biology, Criminalistics)

Regardless of whether or when we ultimately arrive at Huxley's, Orwell's, Asimov's, and/or Harari's dystopian future, in the near term, both current and anticipated technological advances will impact remarkably every aspect of our lives and almost all professions, including the forensic sciences. AAFS, among other organizations, will be crucial in initially vetting, testing, and, if appropriate, utilizing these new technologies as they become available. As mentioned previously,

policymakers and the public will need organized forensic science's input on multiple aspects of these advances, for the betterment of society.

ADDRESSING FUTURE CHALLENGES: STARTING THE CONVERSATION

The 2025 AAFS Annual Scientific Conference in Baltimore, Maryland, will examine the responsible, ethical, and just use of existing and new technologies in the forensic sciences. The meeting will be titled "Technology: A Tool for Transformation or Tyranny?" Some readers (and attendees) may find this title hyperbolic and/or alarmist, but as mentioned previously, technological advances are occurring at a remarkable, even exponential, pace and will be present in almost every field of forensic science in the near future. These tools have extraordinary promise but also great potential peril. In addition to the aforementioned technologies, I'm sure readers can think of others that soon likely will impact each of their section's members in their professional practices.

In expectation of the more widespread use of these technologies, I'm hoping for the Academy to begin considering the following questions, and others:

- How do we implement and utilize new technologies appropriately, ethically, and justly in forensic science (e.g., fMRI, forensic genealogy, AI, risk assessment algorithms, and other predictive analytics)?
- How do we balance the interests of probative value and justice/fundamental fairness (though this may be more of a question for the judicial officers in our Jurisprudence Section)?
- By what mechanism(s) do we communicate with and educate the judiciary, legislatures, and governmental agencies around the responsible use and implementation of these technologies, as they relate to the forensic sciences?

In my opinion, the Academy's proactively (to the extent possible) considering addressing these issues will be incredibly important for both societal/altruistic reasons and professional relevance. The Academy is uniquely poised to address these challenges, given its diverse membership and varied sections, that can each provide a different perspective and can collaborate to this end.

To accomplish this goal and make AAFS's collective organizational expertise more impactful outside of the Academy, it and its members should (continue to) track case law and proposed legislation relevant to forensic science, particularly the use of new technologies in forensic science, and hopefully, make expertise available to policymakers. In my opinion, this can be done by:

- Maintaining our close relationship with the CFSO, in order to monitor and positively influence federal legislation and federal administrative agency policy related to the forensic sciences;

- Re-invigorating the Judicial Outreach Ad Hoc Committee (JOAHC), which was started by AAFS Past President Laura Fulginiti, in order to facilitate the education of the judiciary regarding forensic science topics and technologies;
- Developing a more standardized/systematized process for joining amicus briefs and providing input on legislation, keeping in mind our need to balance the potential divisiveness in membership of weighing in on an issue with the potential judicial and legislative educative benefit of doing so.

I realize that the Academy will continue to grapple with and address these matters for many years past the end of my presidential term and that our position(s) will continue to evolve. My goal for my term is merely to "begin the conversation" around these topics on an Academy-wide basis, and hope for future leadership and membership to address these issues in as proactive a manner as we can. Based on my experiences with upcoming AAFS leaders and members generally, I am quite certain that we are in good hands.

Christopher R. Thompson MD

10850 Wilshire Boulevard, Suite 850, Los Angeles, California, USA

Correspondence
Christopher R. Thompson, 10850 Wilshire Boulevard, Suite 850, Los Angeles, CA 90024, USA.
Email: chthompson@mednet.ucla.edu

REFERENCES

1. Statement From the AAFS Board of Directors on the DOJ Request for Input on Forensic Science. American Academy of Forensic Sciences. [Cited 12 Oct 2024] https://www.aafs.org/article/doj-request-input-forensic-science.
2. Smith v. Arizona, 602 U.S. ___ 2024.
3. The Consortium of Forensic Science Organizations. [Cited 12 Oct 2024] http://www.thecfso.org.
4. Harari YN. Homo Deus: A brief history of tomorrow. New York, NY: HarperCollins Publishers; 2017.
5. Harari YN. 21 lessons for the 21st century. New York, NY: Spiegel & Grau; 2018.
6. Harari YN. Nexus: A brief history of information networks for the stone age to AI. New York, NY: Random House; 2024.
7. Harari YN. Why technology favors tyranny. The Atlantic.; 2018. [Cited 19 Oct 2024] https://www.theatlantic.com/magazine/archive/2018/10/yuval-noah-harari-technology-tyranny/568330/.
8. Hogan NR, Davidge EQ, Corabian G. On the ethics and practicalities of artificial intelligence, risk sssessment, and tRace. J Am Acad Psychiatry Law. 202149(3):326–34. https://doi.org/10.29158/JAAPL.200116-20
9. Youyou W, Kosinski M, Stillwell D. Computer-based personality judgments are more accurate than those made by humans. Proc Natl Acad U.S.A. 2015;112(4):1036–40. https://doi.org/10.1073/pnas.1418680112