IN THIS ISSUE

For this April 2021 issue, we feature three articles. In "π-RT: A Runtime Framework to Enable Energy-Efficient, Real-Time Robotic Vision Applications on Heterogeneous Architectures," the authors discuss how stringent resource and energy constraints are major challenges for autonomous driving and robotics. They argue that developing domain-specific accelerators as proposed by others is costly as well as time consuming and, therefore, may not be suitable for immediate commercial deployment. They explain that the enormous computing power delivered by modern heterogeneous processors has not yet been fully exploited, and they demonstrate that even a simple runtime layer, π-RT, that dynamically dispatches the computationally intensive robotic vision operators can achieve significant performance and energy consumption improvements. With π-RT, they enable mobile robots to simultaneously perform autonomous navigation with 25 frames/s of localization, obstacle detection with 3 frames/s, route planning, large-map generation, and scene understanding, all within an 11-W computing power envelope.

In "Crowd–Machine Hybrid Urban Sensing and Computing," the authors look at how advances in the Internet of Things, artificial intelligence, and cloud/edge computing foster urban sensing and computing (USC). They claim that USC is becoming a promising solution to address significant challenges in modern cities. They investigate how to combine the power of human/crowd and machine intelligence to enable innovative applications of USC. Their article proposes a generic framework for crowd–machine hybrid USC, and they provide two applications in public health and environment monitoring as case studies.

In "Flipping the Script: A Sociotechnical Approach to Platforms and Unanticipated Uses," the author investigates social media platforms and how they can allow for unanticipated uses. The author argues that these platforms 1) display unique qualities that afford unanticipated uses and 2) challenge the application of human-centered evaluations and interpretations. The author claims that this observation, along with a rise in unanticipated uses, demonstrates that the design, function, and use of platforms are best treated as sociotechnical. Therefore, the author believes that the application of sociotechnical concepts should be used for evaluating unanticipated platform usages. The article offers real-world examples, including the dissemination of misinformation.

—Jeffrey Voas, Editor in Chief

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a motion by the publication *ProPublica*, the court allowed the copyrighted source code of FST to be publicly disclosed. The code is available at https://github.com/propublica/nyc-dna-software.

In 2018, a conviction involving FST evidence was overturned for the first time. Several other such cases are still being argued in the courts. However, many people who are incarcerated because of FST evidence may not be able to have their convictions overturned. Faced with DNA "evidence" based on FST, some defendants were advised by their lawyers to take a plea (for a lesser sentence) because such DNA evidence was thought to be difficult to overcome. Appealing a guilty plea is more difficult than appealing a guilty verdict that was contested.

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Several aspects of FST interested us: its technical details, the problems with its testing, and the legal struggle to bring it out in the open. For more about these details, interested readers can see the article by Lacambra et al.[1]

At least two important issues will continue to be of concern long after the FST controversy ends:

1. When software produces outputs that are used as evidence in a criminal trial, is it ever fair to hide the details of that software from the defense? We know that the answer to that question was "yes" for years; we suspect that the answer should be "no."
2. A larger issue that is related to transparency for forensic DNA software is transparency for other software that can dramatically change people's lives. In the legal system, this includes DNA analyses but also software that advises the court