The First Workshop on Quantum in Consumer Technology at IEEE Quantum Week 2022

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The Workshop on Quantum in Consumer Technology (QCT) at IEEE Quantum Week 2022 was an enlightening event, bringing together experts from a variety of fields to discuss the current state and future potential of quantum technology in consumer applications.

IEEE Quantum Week (QCE) is the main conference of IEEE regarding quantum technologies. It is being held annually since 2020. The two first editions were online. QCE 2022 was a hybrid conference for the first time. The event was held at the Omni Interlocken Hotel, in Broomfield, Colorado, USA. It lasted for one week, from 18 September to 23 September. There were more than 1000 registrants, of whom 400 attended in person.

Starting this year, the IEEE Consumer Technology Society (CTSoc) became a technical sponsor of IEEE Quantum Week. The recently established QCT Technical Committee of CTSoc organized a one-day workshop. The workshop was held on 20 September and consisted of three

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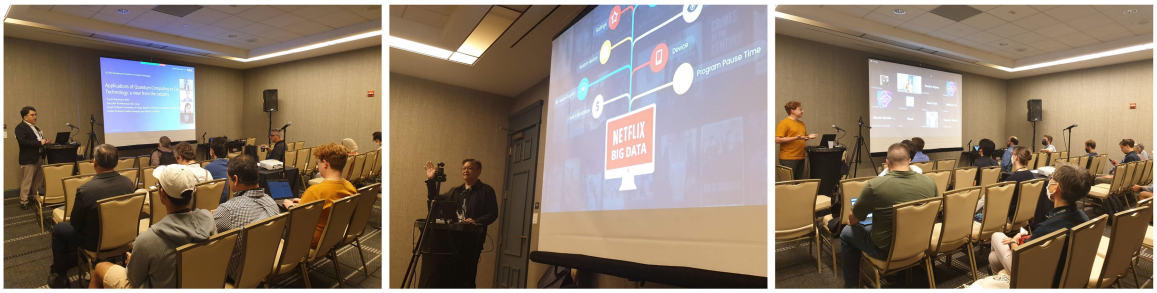

(a) (b) (c)

FIGURE 1. (a) Presentation of Yuichi Nakamura. (b) Nardo Manaloto presented many potential applications of quantum computing to Consumer Technology. (c) Edric Matwiejew during his speech.

panels, 90 minutes each. The panelists and the audience were both in person and online.

The day began with the panel "Applications of Quantum Computing to Consumer Technology: a view from the industry." This session consisted of a panel of people from consumer technology and quantum computing industries who discussed potential applications of one field to the other. The moderator was Yuichi Nakamura from NEC Corporation, Japan; see Figure 1(a). The panelists were Guanru Feng from SPIN Q, China; Nardo Manaloto from Qubits Ventures Fund, USA; Roman Orus, from Multiverse Computing, Spain; Salvador Venegas Andraca from The Unconventional Lab and Instituto Tecnológico de Monterrey, Mexico; see Figure 1(b).

Early afternoon, the panel "Quantum Computing and Consumer Technology from academia and research perspective" took place. The session brought together consumer technology and quantum computing researchers to explore how they envision the convergence of both fields. The moderator was Rafael Sotelo from Quantum-South and Universidad de Montevideo, Uruguay. The panelists were Edric Matwiejew from the University of Western Australia, Australia; Rosario Arjona from Instituto de Microelectrónica de Sevilla IMSE-CNM (Universidad de Sevilla-CSIC), Spain; Kumar Gautam from Egreen Quanta & Quantum Research and Centre of Excellence, India; Mariano Caruso from Fidesol, Spain; see Figure 1(c).

The third panel was "Enabling technologies and services for applying Quantum Computing to Consumer Technology." During this session, the capabilities of quantum computing hardware and services necessary for applying Quantum Computing to Consumer Technology, as well as the current state and roadmaps, were discussed. The moderator was Travis Humble, from Quantum Science Center, USA. The panelists were Daiwei Zhu from IonQ, USA; Win van Dam from Microsoft, USA; Bill Gonzalez from Quantum Realm Computing, USA; Martin Machin from Quantum-South, Uruguay.

To summarize, the workshop discussed quantum technologies' status, innovations, and future directions, with an interest in interdisciplinary technologies, applications, manufacturing, and standards for consumer products, services, systems, and architectures. It involved industry practitioners, academics, and researchers in sessions and discussions about quantum computing, sharing their experiences, advances, and potential applications to consumer technology. It is worth noting that organizers and panelists were geographically diverse, from five different continents.

Overall, the Workshop on QCT at IEEE Quantum Week was a valuable and thought-provoking event, providing attendees with a glimpse into the exciting possibilities that quantum technology holds for the future. With continued research and development, it is clear that quantum systems have the potential to revolutionize a wide range of industries and have a significant impact on our daily lives. Participation in the CTSoc's QCT Technical Committee is open for IEEE members and nonmembers. Join us at https://ctsoc.ieee.org/technical/technical-committees/qct-tc.htmlCTSoc Website—QCT.