History of Computing in East Asia

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The concept of this special issue on the History of Computing in East Asia sprouted during the 2012 annual meeting of the Society for the History of Technology (SHOT) in Copenhagen. Lars Heide, then editor in chief of the *Annals,* had been seeking special issues ideas, one of which was to cover the history of computing in the Asian region.[1] Throughout the years, the pages of *Annals* have seen many articles covering the history of computer technologies in Asia, most recently through a special issue on Asian language processing (vol. 31, no. 1, 2009). In addition, the journal has published a number of articles on the history of computer technologies in Japan, a nation that have contributed numerous innovations in the field.[2] Nevertheless, with the recent surge of interest in Asia within the history of technology community, we thought it was high time that we gauge how far the history of computing in Asia has come.

As potential guest editors, we aimed to cast a wide net, both thematically and geographically, to cover the range of topics on Asian histories of computing. In August 2013, we began to circulate a call for papers to invite original, scholarly treatments that critically examine historical case studies in Asian computing. Despite our initially broad scope, the proposals submitted were rather geographically limited, with the bulk of the papers dealing with East Asia (Taiwan, Hong Kong, Japan, and South Korea). There was only one paper on India, and none on mainland China. As a result, we have decided to narrow the scope of this special issue to the history of computing in East Asia, with the hope that we will see more contributions on the broader Asian region in the future.

All four articles in this special issue cover stories of real-world implementations or applications of computing technology in East Asia. However, each article adopts a unique approach and historiographical strategy, which demonstrates the diversity of this scholarly community. We are particularly proud to have included an article written by engineers who tell the story of their research and development effort. Katsuji Akita and Yutaka Hasegawa's "History of COMTRAC: Development of Innovative Traffic Control System for Shinkansen" provides a first-person account that stimulates historians to think about the process of research, development, and implementation in computing. This article was originally conceived to celebrate the 50th anniversary of Shinkansen, the Japanese bullet train, in 2014. Given their focus on software, readers would benefit from reading this article alongside Yasushi Sato's earlier work on Japanese software engineering.[3]

As Akita and Hasegawa show, the influence and stimuli of the United States was evident in the development of computer technologies in East Asia. Ling-Fei Lin's article, "Design Engineering or Factory Capability? Building Laptop Contract Manufacturing in Taiwan," analyzes the Taiwanese effort to "reverse engineer" personal laptop computers. By problematizing the notion, she points out that copying required more ingenuity and technical capability than commonly expected. Lin frames the story within the industry studies literature, which assumes a "linear progression from manufacturing to design capability." Her argument that Taiwanese companies were strong in both design and manufacturing effectively challenges the

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commonplace view on the trajectory of Taiwan's contract manufacturing industry.

The third article by Dongoh Park, "The Korean Character Code: A National Controversy, 1987–1995," deals with the cultural facets of computing. For countries that use non-Latin characters, setting standards for character codes was a widespread problem, as we have seen in the cases of India, Sri Lanka, and Thailand (*Annals* special issue, vol. 31, no. 1, 2009). In this article, Park meshes the South Korean context of the democratization movement with the ways in which the technical community dealt with the issue of creating computer character codes. Quite interestingly, the national standard for computer character codes came to symbolize national independence, not only from Japan (Korea's former colonizer) but also from the United States.

Finally, Bernardo Bátiz-Lazo and Andrew Smith's article, "The Industrial Organization of Hong Kong's Progression Toward a Cashless Economy (1960s–2000s)," invokes the conceptual framework of epistemic communities to explain the social conditions that led to cashless transactions. As a regional financial hub, Hong Kong (and in particular HSBC) set a useful stage on which the authors could follow the adoption of computer technology into the banking industry by analyzing the interaction between computer professionals and computer-literate managers. Together with Park's article, Bátiz-Lazo and Smith's article demonstrates the diverse ways in which sociocultural factors affect the diffusion and implementation of technical innovations.

As the Taiwanese scholar Kuan-Hsing Chen pointed out in his book, *Asia as Method,* modern Asian history provides rich and useful context to analyze important social transformation such as imperialism, postcolonialism, and globalization.[4] How technology, and in particular computer technologies, played out in this complex terrain should be of great interest not only to those in the region, but also to scholars around the world. We hope this special issue would serve as a stimulus to spark interest in this field, not simply as interesting but unimportant stories of the non-Western world, but as integral components in the global histories of computing. Given that most readers of the *Annals* are from the English-speaking world, we believe the four articles here can serve as an entry point in efforts to integrate diverse narratives into the more familiar body of literature in the history of computing.

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Admittedly, the articles collected in this special issue represent but a narrow slice of the whole picture of Asian computing. Largely due to language barriers, some important works in the history of computing are still available only in the respective native tongues. It is also our hope that this special issue will encourage and catalyze scholars in other parts of Asia to introduce their works in English. There is no doubt that fascinating stories could be told in the historical developments of computing technologies in India, mainland China, and Southeast Asia. The history of computing community would be enriched by gaining access to these treasure troves.

Final words of gratitude go to David Walden, the anonymous referees, and members of the *Annals* editorial staff who helped refine the arguments and prose of the four articles included here. This special issue would not have been possible without your contributions and dedication.

References and Notes

1. Special issues that focus on select countries are not uncommon in the archives of the *Annals.* For example, we can trace special issues on France (vol. 11, no. 4, 1989; vol. 12, nos. 2-4, 1990), the United Kingdom (vol. 14, no. 4, 1992; vol. 15, no. 3, 1993), Canada (vol. 16, no. 2, 1994), Russia (vol. 21, no. 3, 1999), Japan (vol. 27, no. 1, 2005), and Germany (vol. 32, no. 3, 2010). Some of them were thematic (education, users, professionalization, languages, and so on), whereas others focused on specific institutions (such as University of Cambridge, University of Manchester, IBM France) or machines (AEG-Telefunken's TR 440).
2. See, among others, S. Takahashi, "Early Transistor Computers in Japan," *Annals of the History of*

Computing, vol. 8, no. 2, 1986, pp. 144–154; S. Takahashi, "A Brief History of the Japanese Computer Industry Before 1985," *IEEE Annals of the History of Computing*, vol. 18, no. 1, 1996, pp. 76–79; H. Choi and C. Kita, "Hiroshi Wada: Pioneering Electronics and Computer Technologies in Postwar Japan," *IEEE Annals of the History of Computing*, vol. 30, no. 3, 2008, pp. 84–89; H. Choi and T. Otani, "Failure to Launch: Tarui Yasuo, the Quadrupole Transistor, and the Meanings of the IC in Postwar Japan," *IEEE Annals of the History of Computing*, vol. 34, no. 1, 2012, pp. 48–59.

3. Y. Sato, "An Inconspicuous Giant: NTT's Role in the Development of Software Engineering in Japan," *IEEE Annals of the History of Computing*, vol. 33, no. 4, 2011, pp. 28–37.
4. K.-H. Chen, *Asia as Method: Toward Deimperialization*, Duke Univ. Press, 2010. SHOT organized a Presidential Roundtable of the same title for its 2014 annual meeting.

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