

# Events and Sightings

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## Users Group Celebrates Major Anniversary of TeX

The 32nd anniversary of TeX was celebrated at the TeX Users Group (TUG, <http://tug.org>) annual conference on 28–30 June 2010 at the Sir Francis Drake Hotel in San Francisco. Because of the significance of this anniversary ( $32 = 2^5$ ), TeX's inventor Donald Knuth participated in the celebration.

Don (as he is widely known) Knuth revolutionized typesetting when he released his TeX typesetting and Metafont font-design systems in 1978.<sup>1</sup> Knuth was motivated to create the first high-quality, mathematically based typesetting system by disappointment with the typesetting from his publisher for the revised version of volume 2 of his magnum opus *The Art of Computer Programming*. Being a meticulous man, he carefully analyzed volumes of the *Transactions of the American Mathematical Society* starting in 1900. He presented his results on 4 January 1978 in the renowned annual invited Josiah Will Gibbs Lecture (<http://www.ams.org/meetings/lectures/meet-gibbs-lect>), showing the decline in typesetting quality over the years and how more mathematically based typesetting could regain the lost quality.<sup>2</sup> Through this presentation, he began engaging the worldwide mathematics community with TeX.

In 1982 Knuth released significantly improved versions of TeX and Metafont. As with everything he does, Knuth provided comprehensive documentation of his work, resulting in the publication of his five volume *Computers and Typesetting Series*<sup>3</sup> and his collected papers on digital typesetting.<sup>4</sup>

From the outset, Knuth had made it possible for other developers to build features on top of his systems, and in 1990, Knuth stopped active development of TeX and Metafont. He explained:

My work on developing TeX, METAFONT, and Computer Modern has come to an end. I will make no further changes except to correct extremely serious bugs. I have put these systems into the public domain so people everywhere can use the ideas freely if they wish.<sup>5</sup>

In the years since, TeX and Metafont have greatly influenced features now (or soon to be) found in various commercial and open source typesetting and word processing systems. A large worldwide development and support community has continued to build on top of Knuth's specific TeX and Metafont systems. The derivatives of TeX and Metafont remain among the most stable, flexible, powerful, multilingual, and

high-quality typesetting systems available (and available without payment) and are used in all fields of publishing and academic activity.

The recent annual TUG convention in San Francisco had its typical share of presentations on technical developments, tools to aid or extend use of the TeX systems, and so on. The full list of presentations is available on the TUG website at <http://tug.org/tug2010/program.html>, and videos of all the presentations are available on the River Valley TV website (<http://river-valley.tv/conferences/tug-2010>). However, in keeping with the anniversary and Knuth's presence, there were also more history presentations than usual:

- Walter Gander described writing the first book typeset with LaTeX.
- Chirs Rowley talked more generally about the history of LaTeX.
- Bart Childs (one-time TUG president) described using literate programming (another creation Knuth developed to support the development of TeX and Metafont)<sup>6</sup> and aspects of the earlier days of TUG.
- John Hobby mused about whether one particular aspect of his design for MetaPost (a derivative of Metafont) had been the correct approach.

Finally, Knuth was joined for a panel discussion (<http://river-valley.tv/tug-2010-panel>) by nine of his Stanford students who helped him develop TeX and Metafont.<sup>7</sup>

- David Fuchs was Knuth's "right hand man for TeX82" and devised TeX's device independent (dvi) output format.<sup>8</sup>
- John Hobby developed the theory and math for Metafont's polygon pens and other aspects of Metafont and later developed MetaPost (<http://tug.org/TUGboat/Articles/tb10-4/tb26hobby.pdf>).
- Frank Liang worked on hyphenation algorithms for TeX, and his TeX82 algorithm is used today by many other typesetting systems (<http://www.tug.org/docs/liang>).
- Oren Patashnik developed the BibTeX system for formatting bibliographies in many standard styles (<http://www.tug.org/TUGboat/Articles/tb24-1/patashnik.pdf>).
- Michael Plass's PhD thesis presented methods for line breaking and pagination with floats that are used in TeX (<http://www.tug.org/docs/plass>).



Figure 1. TUG 2010 conference attendees. (Courtesy of the TeX Users Group (TUG) and Uwe Ziegenhagen.)

- Tom Rokicki developed what has become the principal converter for moving TeX from implementation in Pascal to implementation in C and developed the converter dvips, for moving dvi to PostScript.
- Luis Trabb Pardo was Knuth's "right hand man" for the development of TeX78.
- Howard Trickey did one of the first ports of TeX to Unix and wrote the first four BibTeX styles.
- Joe Weening was involved in various ways in the transition from TeX78 to TeX82.

The last day of the conference ended with a half-hour humorous presentation by Don Knuth on a new modern typesetting system to replace TeX (<http://river-valley.tv/another-earthshaking-announcement>).

Not surprisingly, a lot of highly precise typesetting and font work was shown during the conference, including a commemorative book<sup>9</sup> and a piece of embroidery from Knuth with this annotation:

This souvenir TeX lion was embroidered by a numerically controlled sewing machine using the remarkably simple EULER-TRAIL algorithm at [www-cs-faculty.stanford.edu/~knuth/programs.html](http://www-cs-faculty.stanford.edu/~knuth/programs.html).

A keepsake in honor of TeX's 32nd anniversary, 30 June 2010

TeX remains computer history's longest running open source success story (<http://www.tug.org/TUGboat/Articles/tb24-1/gaudeul.pdf>).

## References and Notes

1. D.E. Knuth, *TeX and Metafont: New Directions in Typesetting*, Am. Mathematical Soc. and Digital Press, 1979.
2. D.E. Knuth, "Mathematical Typography," *Bulletin of the Am. Mathematical Soc.*, vol. 1, Mar.1979, pp. 337–372; reprinted in D.E. Knuth, *Digital Typography*, CSLI Publications, 1999.
3. D.E. Knuth, *Computers and Typesetting Series*, Addison-Wesley, 1986: "The TeXbook," vol. A; "TeX: The Program," vol. B; "The METAFONT-book," vol. C; "METAFONT: The Program," vol. D; and "Computer Modern Typefaces," vol. E.
4. D.E. Knuth, *Digital Typography*, CSLI Publications, 1999.
5. D.E. Knuth, "The Future of TeX and METAFONT, TUGboat 11," 1990, <http://tug.org/TUGboat/Articles/tb11-4/tb30knut.pdf>.
6. D.E. Knuth, *Literate Programming*, CLSI Publications, 1992.
7. Historical interviews of seven of these nine panelists are available at <http://tug.org/interviews>.
8. D.E. Knuth, *Computers and Typesetting Series*, part 31 of "TeX: The Program," vol. B.
9. K. Berry and D. Walden, eds., "TeX's 25 Anniversary: An Commemorative Collection," TeX Users Group, 2010, <http://tug.org/store/tug10>.

**David Walden** retired from BBN in 1995, after working as a computer programmer, technical manager, and general manager. Contact him at [dave@walden-family.com](mailto:dave@walden-family.com).

**Table 1. Accepted papers and testimonies and program committee details for the First Symposium of the History of Computer Science in Latin America and the Caribbean.**

Country	Authors	Submitted	Accepted	Evaluating program committee members
Argentina	12	9	5	3
Brazil	13	9	8	3
Chile	5	4	2	3
Colombia	1	1	1	1
Costa Rica	2	2	2	1
Cuba	8	5	0	1
Ecuador				1
Mexico	2	1	0	1
Paraguay				1
Peru				1
Spain	1	1	1	2
United States				1
Uruguay	6	2	2	4
Venezuela	1	1	1	2

### ***Latin American Conference of the History of Computer Science***

The evolution of information technologies and communications (ITC) in Latin America and the Caribbean (LAC) has been a prolific process, full of interesting facts and ideas for the last 50 years. The state of the art in our region has reached such a level that we think it is time to carry out an analysis of its origins and events.

For this reason, we organized the First Symposium of the History of Computer Science in Latin America and the Caribbean (SHIALC, <http://www.clei2010.org.py>) on October 2010. The main objective was to help consolidate the development of computer science in our region and document experiences that can be used in future projects.

This first edition of the SHIALC was held as a satellite activity of the XXXVI Latin American Computer Science Conference, organized by Center for Latin American Studies in Computer Science (CLEI, <http://www.clei.cl/nuevaweb/index.php>) and hosted by the Polytechnic Faculty of the National University of Asunción del Paraguay, which had 1,040 attendees. As a result, the SHIALC presentations had dozens of attendees who are interested in the history of this discipline in the region.

CLEI consists of the Computer Science Departments of leading universities of the region and its annual conference has allowed them to collaborate with many other smaller universities. Over the course of its 36

conferences, it has been hosted by almost all the countries of South America as well as some of Central America, Mexico, and Spain.

The study of computer science history has recently been promoted as a main subject in congresses and courses in different countries (such as Cuba, Chile, and Brazil). An important work in this area is the article edited by J. Aguirre and R. Carnota on the history of computing in LAC.<sup>1</sup>

The call for papers for the first SHIALC asked for two types of contributions:

- Research papers presenting different dimensions of the computer history in LAC. These papers were to contain a structure, development, and argumentation based on documentary sources, references, discussion of related works, and so forth.
- Written testimonies or statements about personal or group experiences of direct witnesses of events relevant to the history of computing in LAC.

To ensure a high level of submissions, the program committee consisted of 25 researchers belonging to 19 leading universities in the region and representing 14 countries. There were a total of 35 papers from 10 countries evaluated by at least three committee members. After the evaluation process, 22 proposals were accepted: 12 research papers and 10 statements. Table 1 gives the SHIALC's statistics.

Although the accepted papers generally presents stories of LAC countries, two topics deserve special mention. The first topic corresponds to several papers from Brazilian authors discuss the Reserve Policy of the Computer Market that the Brazilian government established for a number of years in the 1970s. This policy promoted Brazilian software development.

The second topic corresponds to the presentation of pioneering works led by Manuel Sadosky and developed at the Faculty of Sciences of the University of Buenos Aires, Argentina. Aborted by a military coup in 1966, most of the work was continued in several countries of the region (Uruguay, Paraguay, and Venezuela).

Given the success of SHIALC 2010, the CLEI Board of Directors has decided to organize the SHIALC 2012 and expects to repeat this event every two years.

## References

1. J. Aguirre and R. Carnota, eds., "Historia de la Informática en Latinoamérica y el Caribe" [History of Computing in Latin America and the Caribbean: Research and Evidence], Nat'l Univ. Río Cuartok, Argentina, Nov. 2009.

*Jorge Vidart is a professor in the Institute of Computing, Faculty of Engineering, at the University of the Republic, Montevideo, Uruguay. He was also the chairman of SHIALC 2010. Contact him at [jorge.vidart@tilsor.com.uy](mailto:jorge.vidart@tilsor.com.uy).*

## Society for the History of Technology 2010 Meeting

The Society for the History of Technology (SHOT) held its annual meeting in Tacoma, Washington from 30 September to 3 October 2010. Several hundred historians of technology from around the world came together to share two full days of conference sessions and a range of other activities including receptions, a salmon bake in a park overlooking Puget Sound, and an opening plenary discussing the past, present, and future of the society's journal *Technology and Culture*. All sessions took place in the Hotel Murano, a stylish boutique property adorned with an extensive collection of glass art to celebrate the town's most famous industry.

The history of computing is represented within SHOT by the Special Interest Group on Computers, Information, and Society. SIGCIS organized a session for the main conference on "Networks as Places in the History

of Computing," including an international and interdisciplinary set of presenters. Another panel on the history of electronic banking was organized by Bernardo Bätz-Lazo of the University of Leicester. Elsewhere on the main program, speakers explored topics as diverse as the Kindle e-book reader and the recent return to fashion of paper-based personal organizers.

Like most other SHOT interest groups, SIGCIS holds an annual lunch meeting. This year approximately 40 people attended. Members chatted informally over a deli buffet. As usual, the program included a chance for new members to introduce themselves and a series of announcements of interest to the community. We reviewed the SIG's accomplishments over the past year, including establishment of a new online repository of history of computing course syllabi (<http://www.sigcis.org/syllabi>) and resource guides for the history of computing in Britain (<http://www.sigcis.org/britain>) and Japan (<http://www.sigcis.org/japan>).

During the lunch meeting, SIGCIS presented travel awards totaling \$2,400 to seven graduate students participating in its workshop. These included two Computer History Museum Awards of \$500 each, funded by a generous donation from Richard S. Tedlow, the Class of 1949 Professor of Business Administration Emeritus at the Harvard Business School. An auction of history of computing books followed to raise money for next year's awards. Generous bidding drove up prices, yielding \$970 from the auction and a further \$516 in small donations. SIGCIS thanks its members and MIT Press for their ongoing donation of material for the auction.

On the final day of the conference, SIGCIS held its second annual workshop, with the theme of "Materiality and Immateriality in the History of Computing." More than 50 people took part, travelling from Greece, the UK, Japan, Germany, Sweden, Canada, and Spain. The program had a distinctly interdisciplinary feeling, with participants based in programs of communication, information science, and science and technology studies as well as history. The full program is online at <http://www.sigcis.org/workshop10>.

Paul Edwards began the meeting with keynote plenary address entitled "Friction: Rethinking Speed, Power, and Possibility in the History of Information Infrastructures." This drew on material from his recent and well-received book *A Vast Machine* (MIT Press, 2010) to explore the role of different



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kinds of material factors in the science of climate modeling. The 2010 Computer History Museum Prize was presented immediately afterwards (see the following announcement). Participants broke into smaller groups for the remaining sessions, including roundtables on the teaching of computer history and on the relationship between computing and science fiction. Conversation continued over lunch in three local restaurants, providing a chance for relaxed discussion and networking.

After lunch, the dissertations in progress session was particularly successful, giving four students a chance to receive a diverse selection of incisive but constructive critiques of their draft dissertation proposals from a dozen scholars active in the field. The three remaining sessions explored various topics related to the material dimensions of computing, accommodating both traditional presentations and the detailed discussion of precirculated drafts in progress. The workshop concluded with dinner at a riverside seafood restaurant.

The next SHOT meeting is taking place in Cleveland from the 3–6 November 2011. This is collocated with the annual meetings of the History of Science Society and the Society for Social Studies of Science. SIGCIS will run another full day workshop.

**Thomas Haigh** is a historian of computing and an associate professor in the School of Information Studies at the University of Wisconsin, Milwaukee. Contact him at [thaigh@computer.org](mailto:thaigh@computer.org).

**Computer History Museum Prize Winner:  
Atsushi Akera**

SIGCIS awarded the 2010 Computer History Museum prize to Atsushi Akera for *Calculating a Natural World: Scientists, Engineers, and*

*Computers During the Rise of U.S. Cold War Research* (MIT Press, 2007). Akera is an associate professor in the Department of Science and Technology Studies of the Rensselaer Polytechnic Institute. The book is based on his doctoral dissertation from the Department of the History and Sociology of Science at the University of Pennsylvania under the direction of the celebrated historian of technology Thomas P. Hughes.

According to the jury's citation:

This ambitious and theoretically-sophisticated study is both a history of mid-century computing and a history of an emerging infrastructure for Cold War research in the U.S. From wartime work on ENIAC, to the development of time-sharing at MIT and Michigan, to IBM's entry into technical computing, the impressively researched case studies in each chapter revisit well-known episodes in computing history as part of a much larger story. Akera's interest in the productive tensions that animated the work of the military-industrial-academic complex—extending existing scholarship in this area—undergirds a grounded theory of innovation that will shape future work in our field. We believe the book's treatment of core episodes in computing history as well as its "ecology of knowledge" perspective will find a wide audience.

The prize was presented to Akera by jury member Thomas Misa of the University of Minnesota's Charles Babbage Institute. The presentation drew a large crowd during the first coffee break of the SIGCIS workshop on 3 October, part of the annual SHOT meeting.

After the presentation, SIGCIS chair Thomas Haigh thanked Misa, whose term on the jury was finishing, for his work on the prize and for his earlier service chairing the steering committee responsible for establishing its format. Jennifer S. Light of Northwestern University's communication school chaired this year's jury, and Pierre Mounier-Kuhn of the Sorbonne was its final member.

This prize of \$1,000 is awarded to the author of an outstanding book in the history of computing broadly conceived, published during the prior three years. It was established through the generosity of an anonymous donor to honor the Computer History Museum. See full details at <http://www.sigcis.org/CHMprize>.

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