le cnam
HT2S

Histoire destechnosciencesen société

International symposium - Unix in Europe: between innovation, diffusion and heritage

This symposium will explore the development of the famous Unix operating system in Europe and internationally, from several perspectives: historical, sociological, philosophical et epistemological, as well as heritage-oriented. We call for contributions by researchers in social sciences and humanities, heritage professionals interested by Unix and open software and systems, but also to the community that took part in and witnessed its history.

Call for contributions for the international symposium:

Unix in Europe : between innovation, diffusion and heritage

The Unix system was born in the 1970s at the crossroads between two interacting worlds: industry (the Bell Labs at AT&T) and academia (the University of Berkeley computer science network). Its fast adoption throughout computer research and engineering networks across the world signaled the future success of the new system, fostering software experiments within its open, multi-user and multi-tasking system running on mini-computers – and later compatible with a larger part of computer hardware. In the European context, how was this American innovation propagated, adopted and adapted? Why was Unix of so much interest in this context, then and now? A solid culture of Unix users might also explain this success, as well as subsequent processes of appropriation and inheritance, due to the long and complex history of Unix versioning. The memory of Unix users is vivid indeed, fed by early accounts within the computer world (Salus, 1994) as well as preservation initiatives (Toomey, 2010). Moreover, the Unix system is a crucial reference in the history of computing, in particular in the field of free and open source software (Kelty, 2008), computer networks (Paloque-Berges, 2017), as well as in programming language philosophy (Mélès, 2013).

In order to explore the variety of these interrogations, this symposium encourages contributions from historians as well as philosophers, social science researchers, and heritage professionals interested in the history of computer open systems and software with a focus on Unix or who have a wider perspective. It will also welcome protagonists and witnesses of Unix culture and carriers of its memory. We wish to discuss and shed light on several aspects of the development of Unix in Europe (including in comparison or relation with the rest of the world) along three main lines: historical and sociological, philosophical and epistemological, and heritage- and preservation-oriented.

1/ Historical and sociological perspectives

Historically, the Unix system is linked to the promotion and development in research on open systems and computer networks. How does this fit in the context of industrial, scientific and technological policies defined at the national and European level? The history of Unix thus reaches at least three levels of interrogations: 1/ the forms, places and practices of innovation around Unix in R&D labs and computing centers in companies, schools and universities; 2/ planning, promoting and negotiating open systems (norms and standards) from the perspective of science and/or politics; 3/ international geopolitical relations, whether economical or geopolitical and even geostrategic (for example between Unix users, with users of other computer equipment or other hardware and software companies, the role of embargos in the shipping of mini-computers, of code, and military uses of Unix).

In parallel, how has the world of computer research welcomed, encouraged, negotiated and propagated uses and innovations related to Unix systems? This begs the question of how Unix-related research and development was legitimized - or played a part in the legitimization of computer science experimentalism in the scientific field and beyond. We would also like to highlight practices of resistance, the failure to acknowledge, ignorance of or even the limits of the Unix system, its software tools and hardware environment (beginning with the famous PDP and Vax machines from

Digital Equipment where the first Unix versions were implemented). With a focus on occupational computer uses, we call for analysis which aims to explore and clarify:

- the role of developers, users, and user associations – from the point of view of pioneers as well as helpers, maintainers and other witnesses of the implementation of Unix;

- the context, process, and people who determined its propagation, appropriation, and development over time;

- the meaning of concepts of Unix philosophy and ethics such as "openness" and "autonomy", from a social, political or economic point of view.

2/ Philosophical and epistemological perspectives

We will foster research and reflection at the crossroad of the theoretical foundations of computer systems and engineering pragmatism, between the philosophy of computer systems and Unixian practices.

Protagonists in the conception and diffusion of Unix often claim to have a 'Unix philosophy' . But beyond statement of principle, what was the real influence of this idea on the technical choices underlying the system's developments? What are the ethical, moral, and philosophical motivations – alongside the social, political or economic dimensions discussed earlier – underpinning the adoption of Unix or pretending to extend it (for instance in relation to the notions of sharing, modularity or freedom)? How is the idea of 'openness' attached to Unix practices and heritage (free software, open source) conceived? What are the theoretical developments to be drawn from it (for instance with the idea of open software)?

The logical and mathematical foundations of Unix should be readdressed. Do the fundamental concepts of Unix have an ontological or metaphysical significance beyond the sole research aim of technical efficiency? What role do aesthetics play in the formulation of general principles and technical choices? How can we analyze programming languages such as C and its successors, scripts, software, and generally speaking, the proliferating source codes of Unix? How do we consider the system, the software environment, as well as the hardware in which Unix is implemented and executed?

Such philosophical questions also cover the modalities of the transmission of Unix, extending to the investigation of the respective roles of theory and practice in the teaching of the system, the teaching of knowledge and tools underlying the system or supporting the system.

3/ Heritage and 'heritagization' of Unix

France is now the home to multiple initiatives taking place to build and preserve a material and immaterial heritage of computer science and technology – such as 'Software Heritage' at INRIA, a global software archive in progress. The Museum of Arts et Métiers gave impetus to the MINF initiative ('Pour un Musée de l'informatique et du numérique') and coordinates the 'Patstec Mission' dealing with contemporary scientific and technological heritage preservation, including computer science. At an international scale and with a grassroots perspective carried by the community of Unix users, the TUHS (The Unix Heritage Society) demonstrates the current interest in the specific heritage linked to Unix. We encourage reflections on this heritage and its specific features:

- What is the place of Unix in the construction of computer science heritage? Is it possible to map Unix systems and their heritage, from the standpoint of machines, languages and software? What has already been collected? What corpus, data bases, and/or platforms with a patrimonial mission are concerned with Unix and to what purpose?

- How are the questions of training, constitution and diffusion of a Unix culture incorporated in the effort to collect heritage? How do we evaluate and put forward the importance of immaterial heritage attached to Unix, considering the effects of community and memory in its history and for the writing of its history?

- What are the practices and modalities advocated by the unixian heritage itself? What has been its influence on the field of computer engineering and research as well as diverse fields such as: popularization of science and technology, 'hacker' movements and many 'maker' practices today (Lallement, 2016)?

Bibliography

Kelty, Christopher M. 2008. *Two Bits: The Cultural Significance of Free Software*. Durham: Duke University Press Books.

Lallement, Michel. 2016.*L'âge du faire*, Paris : Seuil.

Mélès, Baptiste. 2003. « Unix selon l'ordre des raisons : la philosophie de la pratique informatique ». *Philosophia Scientiæ* 17 (3): 181?98.

Paloque-Berges, Camille. 2017. « Mapping a French Internet experience: a decade of Unix networks cooperation (1983-1993) ». In G. Goggin et M. McLelland (eds.), *Routledge Companion to Global Internet Histories*, New-York: Routledge, 153?170.

Salus, Peter H. 1994. *A Quarter Century of UNIX*. Addison-Wesley: Reading.

Toomey, Warren. 2010. « First Edition Unix: Its Creation and Restoration ». *IEEE Annals of the History of Computing* 32 (3): 74?82.

May 12, 2017

June 30, 2017

The symposium will be held on October 19th, at Conservatoire national des arts et métiers, 292 rue Saint-Martin, Paris, France.

Communications and discussions will be held in English and French.

Download the call as a PDF here.

How to submit

Please send a one-page abstract (maximum 500 words) with a short biography by June 30, 2017 to: camille.paloque_berges@cnam.fr and loic.petitgirard@cnam.fr. Accepted contributions and speakers will be notified by July 15, 2017.

Organizing committee

Isabelle Astic (Musée des arts et métiers)

Raphaël Fournier-S'niehotta (Cédric, Cnam)

Pierre-Eric Mounier-Kuhn (CNRS et Université Paris-Sorbonne)

Camille Paloque-Berges (HT2S, Cnam)

Loïc Petitgirard (HT2S, Cnam)

Scientific committee

François Anceau (UMPC-LIP6)

Pierre Cubaud (Cédric, Cnam)

Liesbeth de Mol (STL, Lille 3)

Claudine Fontanon (CAK, EHESS)

Gérald Kembellec (DICEN, Cnam)

Baptiste Mélès (Archives Henri Poincaré, CNRS)

Pierre Paradinas (Cédric, Cnam)

Giuseppe Primiero (Middlesex University)

Lionel Tabourier (LIP6, Paris 6)

Institutional support and partners

- Research team Hist.Pat.info.Cnam, HT2S, Cnam - Programme de recherche du Labex Hastec piloté par le laboratoire HT2S-Cnam, et les partenaires CEDRIC (Cnam), DICEN (Cnam), Centre Alexandre Koyré (EHESS).

- Seminar « Histoire de l'informatique » (Musée des arts et métiers, CRM, Paris 1, UMPC-LIP6)

- Seminar « Codes sources » (CNRS, Cnam, Université Paris 6).

With support from the DHST/DLMPST for the History and Philosophy of Computing (HAPOC)

https://technique-societe.cnam.fr/international-symposium-unix-in-europe-between-innovation-diffusion-and-heritage-9