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From Active Data Management to Event-Based Systems and More

Papers in Honor of Alejandro Buchmann
on the Occasion of His 60th Birthday

Volume Editors

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Alejandro Buchmann

Preface

*“I think there is something wrong with your arithmetic ...
Alex and I are about the same age,
and he and I cannot be getting close to 60.”*

Hector Garcia-Molina

Data management has evolved over the years from being strictly associated with database systems, through active databases, to being a topic that has grown beyond the scope of a single field encompassing multiple aspects: distributed systems, event-driven systems, and peer-to-peer and streaming systems. The present collection of works, shedding light on various facets of data management, is dedicated to Prof. Alejandro Buchmann on the occasion of his 60th birthday. His scientific path looks back on more than 30 years of successful academic life and high impact research. With this book we celebrate Prof. Buchmann’s vision and achievements.

The works presented here cover many different topics: database systems, event-based systems, distributed systems, peer-to-peer systems, etc. All these are areas in which Prof. Buchmann and his group were active and provided relevant research contributions over the years.

The area of *data management, streams and XML* spans contributions from Theo Härder et al. on XML processing and key concepts implemented in XTC; from M. Tamer Özsu et al. on mining streaming data; from Thomas Kudraß on active database systems; and from Frischbier and Petrov on data intensive cloud applications.

The field of *event processing* is covered through contributions from many leading researchers such as K. Mani Chandy on extending the boundaries of sense-and-respond applications to the Web and the Cloud; from Jean Bacon, Ken Moody et al. on spatio-temporal composite event languages; from Opher Etzion et al. on spatial perspectives in event processing; and from Gero Mühl et al. offering insights on underlying design principles implemented in REBECA.

The fields of *quality of service* and *real-time systems* are represented by contributions from Krithi Ramamritham et al. on safety partition kernel for integrated real-time systems; from Annika Hinze et al. on anonymous mobile service collaboration; and from Dimka Karastoyanova on scientific experiments and services.

The area of *peer-to-peer* concepts and systems contains contributions from Gerhard Weikum offering an overview and in-depth insights on peer-to-peer web search; from Max Lehn et al. on benchmarking peer-to-peer systems; and from Christof Leng et al. on building an SQL query processor for peer-to-peer networks.

The field of *pervasive computing* is covered by interesting contributions from Friedemann Mattern et al. on Internet of Things and RFID; from Bettina Kemme et al. around group communication for mobile devices through SMSs; and from Daniel Jacobi et al. on an approach to declaratively constraining the nodes participating in a sensor network query.

Another active research area of Prof. Buchmann is *performance engineering*, which is represented by a paper introducing the novel QPME 2.0 tool by Samuel Kounev et al. and a workload characterization for event notification middleware from Stefan Appel et al.

We are grateful to all those world-class researchers, colleagues and friends who, with their works, joined us in honoring a truly remarkable figure: as a visionary and a distinguished personality, as a professor and a leading faculty member, as an academic peer and fellow researcher, as supervisor and mentor—Alex Buchmann.

September 2010

Kai Sachs
Ilia Petrov
Pablo Guerrero

**Joint Celebration of the 60th Birthday of
Alejandro P. Buchmann, Sorin A. Huss, and
Christoph Walther
on November 19th, 2010**

*Honourable Colleague,
Dear Alex,*

Let me first send my congratulations to you as well as to Sorin Huss and Christoph Walther. You jointly celebrate your 60th birthdays this year. I wish you all the best for your future work at TU Darmstadt!

Alex, we have survived many battles and wars in the overlap time of our periods of service in the department's headquarters. In the former period, I was your Deputy Studies, in the latter period, you were one of my Deputies General. I remember well our meetings in your office (yours is more comfortable than mine), where we frequently debated the most urgent challenges of the day. These meetings always took much more time than planned (if they were planned at all). And each time, I left your office a bit smarter than before, and more confident that we would eventually cope with all of the trouble. And we did.

A few months ago, you retired; no, not from your position as professor, but from that treadmill they call "Dekanat". So you made more time for research. By the way, research: your breadth and wealth of research interests, which you pursue together with your research group, are impressive. So is your social network in science and beyond.

You three guys are true institutions of the department (I am tempted to speak of dinosaurs, however, in an absolutely positive sense). You have seen colleagues come and go. Due to your experience and your long time of service in the department, you have become critical nodes of the department's corporate memory network. Your experience has been decisive during many discussions, typically (yet not exclusively) for the better.

I should mention that each of you three guys is equipped with a specific kind of spirit. Your humorous comments, always to the point, made many meetings amongst colleagues really enjoyable for the audience (well, the meeting chair did not always enjoy them, but that's fine). You have always combined passion with reason, spirit with analysis, vision with rationality.

On behalf of the colleagues, the department, and TU Darmstadt, I hope that you three guys continue to have a great time together with all of us and an even longer chain of success stories than ever. Happy Birthday!

September 2010

Karsten Weihe
Dean of the Department of Computer Science,
TU Darmstadt

Laudation for Alejandro Buchmann

I was delighted to be asked to write a laudation for my colleague Alejandro Buchmann. Not because we are well acquainted or have worked together closely, neither is the case, regrettably, but because he is, for me, a perfect example of a scientist coming from abroad and becoming successfully integrated here without losing his own cultural identity, and in the process enriching our culture and making a lasting contribution to scientific and academic life in this country.

Alejandro Buchmann began his academic career in his native country Mexico, studying not computer science, in those days that was not yet possible in Mexico, but chemistry! He worked briefly as a chemist for Hoechst, but then decided to continue his studies, obtaining his Master of Science degree from the University of Texas in Austin.

But, like other engineers, he soon became fascinated with our blossoming computer science discipline. After successfully completing his doctorate in Austin, Texas, he worked mainly in the field of computer science, which is where his major accomplishments lie. And for TU Darmstadt it was definitely a happy development when he accepted the offer of a C4 professorship there in 1991.

I do not wish, at this point, to go into his numerous academic and scientific achievements and the many honours accorded him. His university colleagues and partners can do a much better job of that. Instead, I would like to draw attention to the way he has used his international network of contacts and his innate capacity for enthusiasm to build and consolidate close ties and cooperation with his home country and other countries across Latin America. We all know that building international ties and cooperation requires a great deal of commitment, and in particular a proper appreciation of the many and sometimes considerable differences between countries in terms of education and training. And who has been able to make better use of such knowledge and understanding for the countries of Latin America than Alejandro Buchmann?

To my regret, I have personally only once had the opportunity to witness him “in action” here: committed, emotional, eminently competent and highly professional! In this role Alejandro Buchmann has become an ambassador for German computer science, and for his achievements in this capacity the German computer science community and its representative body, the Gesellschaft für Informatik (GI), is greatly indebted to him.

Of course, Alejandro Buchmann's work within Germany's computer science community is not confined to this role of "ambassador". As a scientist, he enjoys great national and international renown and respect. This is clearly evidenced by his many activities as the editor, author and reviewer of numerous books and other publications. And despite all of these duties, he has twice been the Dean of the Computer Science Department at TU Darmstadt, a position to which he brought his wonted commitment and competence.

Congratulations on an impressive life's work and my very best birthday wishes!

September 2010

Stefan Jähnichen
President of the Gesellschaft für Informatik (GI)

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