

# SUMMARY

## 1. Personal data

<b>Family names and First name</b>	<b>Spanish ID card (DNI)</b>	
Jordà Puig, Sergi	46225667Z	
<b>Nationality</b>	<b>Birth date</b>	<b>Sex</b>
Spanish	15/11/1961	Male
<b>Address</b>		
Riereta 24, Sat-1, 08001 Barcelona		

## 2. Current professional situation

<b>Institution</b>	<b>Centre</b>	
Universitat Pompeu Fabra	Escola Superior de Tecnologia (ESUP)	
<b>Department</b>	<b>Address</b>	
Departament de Tecnologies de la Informació i les Comunicacions	Roc Boronat 138	
<b>City Code</b>	<b>City</b>	<b>Province</b>
08003	Barcelona	Barcelona
<b>Current professional position</b>	<b>Initial date</b>	
Associate professor	25/9/2011	
<b>Dedication</b>	<b>Speciality (UNESCO codes)</b>	
Full time	3307.02, 2201.03	

## 3. Academic formation

<b>University degree</b>	<b>Centre</b>	<b>Date of completion</b>
"Licenciatura" in Fundamental Physics (5 years BSc)	Universitat de Barcelona (UB)	21/04/1987
<b>Doctorate</b>	<b>Centre</b>	<b>Date of completion</b>
PhD in Computer Science and Digital Communication	Universitat Pompeu Fabra	21/06/2005
<b>Other postgraduate studies</b>	<b>Centre</b>	<b>Date of completion</b>
1.Master in Artificial Intelligence	1.Facultad de Ciencias, UNED	1.1992
2.Advanced Studies Diploma (DEA)	2.Universitat Pompeu Fabra	2.14/12/2001

## 4. Doctoral thesis

**Title:** Digital Lutherie: Crafting Musical Computers For New Musics' Performance and Improvisation

**Directors:** Dr. Xavier Serra i Casals

**University:** University Pompeu Fabra

**Department:** Doctorat d'Informàtica and Comunicació Digital

**Qualification:** Excelent Cum Laude by unanimity

**European PhD:** No

**Date of the thesis defence:** 21/06/2005

**Date of the title expedition:** 31/10/2005

**Number of citations:** 48 (Google Scholar, retrieved 22<sup>nd</sup> June 2011)

The thesis was selected by Leonardo ISAST Abstracts Service (LABS) as one of the 4 more relevant theses of 2006, between all the theses written worldwide in English or in Spanish, in the intersection of art, science and technology.

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## 5. Accreditations

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ANECA accreditation (*Profesor Ayudante Doctor*) obtained the 1st of March 2006

AQU Research accreditation (*Professor Agregat*) obtained the 5th of February 2010.

Positive evaluation of the research activities by the AQU (*avaluació de l'activitat investigadora*) for the period 2004-2009, confirmed the 6th of July 2010.

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## 6. Languages (C = average, B = well, A = very well)

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Language	Speak	Read	Write
1. Spanish	1. A	1. A	1. A
2. English	2. A	2. A	2. A
3. French	3. A	3. A	3. A
4. Catalan	4. A	4. A	4. A
5. Italian	5. B	5. B	5. C

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## 7. Scientific Publication Citation Counting Summary

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**Citations:** 1159 (retrieved 30th September 2012)

**Cited Publications:** 41

**Most cited publication:** 277

**H-Index:** 17

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## 8. BIO

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I was awarded my PhD in June 2005, for which I should still be considered a ‘starter’. I have authored 17 articles in journals and book chapters, as well as 46 peer-reviewed conference papers and given more than 20 invited presentations and keynote talks. Of these publications, 53 have received a total of 983 citations (in Google Scholar), the most cited one with 223 citations. I have participated in 30 international scientific committees (in 3 of them as paper chair). I have received 19 international awards, including the prestigious Prix Ars Electronica Golden Nica. I have participated in 6 funded projects both from the EC and the Spanish government (in 2 of them as the IP), and between 2006 and 2008 I have signed 16 research and technology transfer contracts with companies or administrations for more than 350.000€. In 2009 I founded the spin-off company Reactable Systems, which in 2010 invoiced more than 510.000€. That said, my academic path should be seen from the perspective of my long-term passion for scientific research, music and artistic creativity, and my desire to intertwine those elements in innovative ways.

I hold a degree in Fundamental Physics (1986). During my undergraduate years, which I combined with music studies at the Conservatory, I discovered computer programming and decided to fully devote myself to live computer music, a completely novel area of research in Spain in early 90s. After graduation I worked as a software developer in industry, while studying computer music at home and collaborating with artists. Throughout the 1990s I conceived and developed award winning interactive installations, multimedia performances [26] and a collaborative music creation project over the Internet [15,16], in collaboration with internationally renowned Catalan artists such as Marcel·lí Antunez or La Fura dels Baus. I resumed my scientific and academic career in 1999, when the University Pompeu Fabra initiated the Computer Engineering Faculty (DTIC), together with a research group in computer music, the Music Technology Group (MTG), headed by Dr. Xavier Serra. This allowed me to start a career of researcher and teacher, with the full support of the university. Hence, although my academic career officially started in 1999, I could not have accomplished it without the knowledge, vision and experience gained in the professional and artistic world throughout the 1990s.

In 2005 I was awarded with a PhD. Within the MTG, I have coordinated two European projects and do currently lead a Music and Advanced Interaction team of 4 Phd students that focuses in Human Computer Interaction (HCI), with a special emphasis on real time music performance. A first result of this convergence between computer music performance and HCI was the project on tangible interfaces Reactable [20,32], which in 2007 got international repercussion, when Icelandic singer Björk incorporated a Reactable in her world tour Volta. With hundreds of articles in international magazines and general press, hundreds of lectures and presentations around the world, national and international presentations on television, the project has accomplished unparalleled mass popularity for a project of academic origin, having received many prestigious international awards (see 1c). In March 2009, the creators’ team we decided to fund Reactable Systems. While the three other Reactable’s original researchers are working full-time for the company, I decided to stay within the academy, obtaining a tenure-track position at UPF from 2011.

After the Reactable project, I became one of the world experts in Tangible Interaction (TI), with papers with more than 220 citations [32], and chairing twice the international conference on “Tangible Embedded and Embodied Interaction” (TEI). My team and I have entered non-musical domains, investigating some of the special areas in which tangible interaction may be more profitable [2], creating tangible programming languages for children [1], studying the potential benefits of tabletops within special users such as autistic children [11], refining techniques for the tracking of objects in 3D space [14], studying augmented communication using tabletops and brain computer interfaces [3,4,5], developing open-source tabletop programming SDKs for helping others building their own tabletop applications [6], analyzing the potential for creativity in tabletop interaction [12] or creating frameworks and methods for the evaluation of complex interaction techniques such as the ones taking place on a collaborative tabletop [7,8,9,10,12]).

## 1(b) Curriculum Vitae

**Current position:** Associate Professor (tenured), Music Technology Group, Department of Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain. Tenured since 2011.

### Education:

- 2005 Ph.D. in Computer Science and Digital Communication, Universitat Pompeu Fabra, Barcelona (Spain).
- 2001 Advanced Studies Diploma (DEA), Universitat Pompeu Fabra, Barcelona (Spain)
- 1992 M.Sc. in Artificial Intelligence, Facultad de Ciencias, UNED, Madrid (Spain).
- 1987 B.Sc in Fundamental Physics, Universitat de Barcelona, Barcelona (Spain).

### Accreditations

- 2011 Associate Professor (tenure position).
- 2010 AQU Research accreditation (*Professor Agregat*).
- 2010 Positive evaluation of the research activities by the AQU (*avaluació de l'activitat investigadora*) for the period 2004-2009.
- 2006 ANECA accreditation (*Profesor Ayudante Doctor*).

### Coordination of Competitive Research (as IP)

- MODEM (EC), 2005-I/05/B/F/PP-154059, 50.000€, 01/10/2005 to 30/09/2006.
- Teclepatía: mecanismos de comunicación subliminales en entornos de trabajo colaborativo (Ministerio de Ciencia e Innovación, Spain) 247011601-11601-6-110, 53.750€, 10/01/2011 to 09/03/2012.

### Participation in other Competitive Research Projects

- CUIDADO (EC), IST-1999-20194, 394.320€, 01/01/2001 to 31/12/2003.
- AGNULA (EC), IST-2001-34879, 270.631€, 31/03/2002 to 31/03/2004.
- Semantic Hifi (EC), IST-507913, 217.000€, 01/12/2003 to 30/11/2006.
- Promusic (Ministerio de Ciencia y Tecnología, Spain), TIC2003-07776-C02-00, 80.000€, 01/12/2003 to 30/11/2006.
- Createworlds: una plataforma para el aprendizaje creativo sobre mesas interactivas (Ministerio de Ciencia e Innovación, Spain), TIN2010-20488, 23.000€, 01/01/2011 to 31/12/2013.

### Participation in research contracts and technology transfer

Between 2002 and 2008, I signed 16 contracts with companies and/or administrations for a total amount of more than 350 K€, including one with Microsoft Research Cambridge (UK) for an amount of 115 K€ (2007). In 2009, I founded the spin-off company Reactable Systems (RS), together with research colleagues Günter Geiger, Martin Kaltenbrunner and Marcos Alonso, with the vision to redefine the way we interact with computers. Using the knowledge gained through the Reactable musical instrument, RS is developing intuitive products focused on the promotion of creativity and the mediation of culture. RS current products include the Reactable Experience, Reactable Live and Reactable Mobile. In 2010 RS invoiced over 510K€.

### Recognition and diffusion of research results

I have authored 17 articles in journals and book chapters, as well as 46 peer-reviewed conference papers (these are main way for publication in HCI community) and given more than 20 invited presentations and keynote talks in international conferences. Of these publications, 53 have received a total of 983 citations (in Google Scholar) – with the most cited one with 223 citations. The current h-index is 15 based on Scholar results.

### **Selection of recent publications in peer-reviewed conferences, journals or book chapters**

The list below includes only recent publications (after 2008), in peer-reviewed conferences, journals or book chapters written with together with supervised PhD students. A list of selected previous publications in journals, book chapters and peer-reviewed conferences, prior to 2008 is included in next section 1(c).

- [1] Gallardo, D., Julià, C.F. and Jordà, S. (2008). TurTan: A tangible programming language for creative exploration. Proceedings of the 3d IEEE international workshop on horizontal interactive human-computer systems "Tabletops & Interactive Surfaces" Amsterdam, Netherlands.
- [2] Julià, C.F. and Jordà, S. (2008). SongExplorer: a tabletop application for exploring large collections of songs. 10th International Society for Music Information Retrieval Conference ISMIR, 10th International Society for Music Information Retrieval Conference. Kobe, Japan. Proceedings of the 2008 IEEE international workshop on horizontal interactive human-computer systems.
- [3] Mealla, S., Valjamae, A., Bosi, M. and Jordà, S. (2011). Let Me Listen to Your Brain: Physiology-based Interaction in Collaborative Music Composition CHI 2011: 29th ACM Conference on Human Factors in Computing Systems. Vancouver, BC, Canada. Proceedings of the 2011 ACM SIGCHI 29th ACM Conference on Human Factors in Computing Systems, ACM 978-1-4503-0268-5/11/05.
- [4] Mealla, S., Valjamae, A., Bosi, M. and Jordà, S. (2011). Listening to Your Brain: Implicit Interaction in Collaborative Music Performances. 11th International Conference on New Interfaces for Musical Expression, NIME'11. Oslo, Norway. Proceedings of the 11th International Conference on New Interfaces for Musical Expression, NIME'11.
- [5] Mealla, S., Valjamae, A. and Jordà, S. (2011). Sonification of Brain and Body Signals in Collaborative Tasks Using a Tabletop Musical Interface. International Conference on Auditory Display (ICAD). Budapest, Hungary.
- [6] Julià, C.F., Gallardo, D. and Jordà, S. (2011). MTCF: A framework for designing and coding musical tabletop applications directly in Pure Data. 11th International Conference on New Interfaces for Musical Expression, NIME'11. Oslo, Norway. Proceedings of the 11th International Conference on New Interfaces for Musical Expression, NIME'11.
- [7] Xambó, A., Laney, R., Dobbyn, C., Jordà, S. (2011). Collaborative music interaction on tabletops: An HCI approach. BCS HCI 2011 Workshop - When Words Fail: What can Music Interaction tell us about HCI? The 25th BCS Conference on Human-Computer-Interaction. Northumbria University, Newcastle Upon Tyne (UK). Proceedings of the 25th BCS Conference on Human-Computer-Interaction.
- [8] Xambó, A., Hornecker, E., Marshall, P., Jordà, S., Laney, R., Dobbyn, C. (2012). Let's jam the Reactable: situated learning during musical improvisation on a tabletop. ACM SIGCHI, Seattle (USA). (submitted).
- [9] Xambó, A., Laney, R., Dobbyn, C., Jordà, S. (2012) Tabletop groupware for music: towards design patterns. ACM SIGCHI, Seattle (USA). (submitted)
- [10] Xambó, A., Laney, R., Dobbyn, C., Jordà, S. (2012) Video analysis for evaluating music interaction: musical tabletops. Book chapter in "Music interaction", Simon Holland, Katie Wilkie, Allan Seago and Paul Mulholland, editors. Springer Cultural Computing Series, Springer Verlag (in print).
- [11] Villafuerte, L., and Jordà, S. (2012). Acquisition of Social Abilities through music Tangible User Interface: children with Autism Spectrum condition and the Reactable. ACM SIGCHI, Seattle (USA). (submitted)
- [12] Catala, A., Jaen, J., van Dijk, B., Jordà, S. (2012). Exploring Tabletops as an Effective Tool to Foster Creativity Traits. TEI 2012, Sixth international conference on tangible, embedded and embodied interaction. Kingston, Ontario, Canada. (submitted).
- [13] Troiano, G.M., Julià, C.F., Jordà, S. (2012). Comparative studies of different input and control methods in a real time tabletop interaction context. TEI 2012, Sixth international conference on tangible, embedded and embodied interaction. Kingston, Ontario, Canada. (submitted).
- [14] Gallardo, D., Jordà, S., Izadi, S. (2012). An optical tracking system for SecondLight: 6DoF Fiducials and hand gestures. TEI 2012, Sixth international conference on tangible, embedded and embodied interaction. Kingston, Ontario, Canada. (submitted).

## Other scientific merits

- **Participation in scientific committees:** Starting in 2002 I participated in 30 international scientific committees, in 3 of them as paper or conference chair.
- **Teaching:** at UPF I was coordinator of the Master in Digital Arts (MAD) between 2002 and 2005, and since 2009 I coordinate the Postgraduate Course in Sonology, while also teaching two trimestral courses in the Interdisciplinary Master in Cognitive Systems and Interactive Media (CSIM) and Sound Music Technology (SMC) masters. During these years, I have supervised more than 20 master theses, and I am currently supervising 4 PhD theses and co-supervising 3 more.
- **Science popularization:** apart from science talks for public, I would like to stress that Reactable Experience is currently present in 13 children and science museums of 4 continents.

## 1(c) Early Achievement-Track-Record

### Journals and book chapters with the submitter as first or only author

(total journals and book chapters authored or co-authored = 16)

- [15] Jordà, S. (1999). "Faust Music On Line: (FMOL) An Approach To Real-Time Collective Composition On The Internet", *Leonardo Music Journal* 9:5-12. [0,038 (SJR SCImago). Google Scholar 59, ISI 9]
- [16] Jordà, S. (2002). "FMOL: Toward User-Friendly, Sophisticated New Musical Instruments". *Computer Music Journal* Number 26-3: 23-39. [0,486 (JCR), 0,044 (SCR SCImago), Google Scholar 38, ISI 3, Q2 Computer Science Applications (SCImago), 46/80 Computer Science, Interdisciplinarity]
- [17] Jordà, S. (2002). "Improvising with Computers: A Personal Survey (1989-2001)". *Journal of New Music Research* 31-1: 1-10 [0,2 (JCR), Google Scholar 25, ISI 2. 74/80 Computer Science, Interdisciplinarity]
- [18] Jordà, S. (2004). "Instruments and Players: Some Thoughts on Digital Lutherie". *Journal of New Music Research* 33-3: 321-341. [0,431 (JCR), Google Scholar 13, ISI 1. 74/80 Computer Science, Interdisciplinarity]
- [19] Jordà, S. (2007). Interactivity and Live Computer Music, in "The Cambridge Companion to Electronic Music" 89-106, Edited by Nick Collins and Julio d'Escrivan. Cambridge University Press, Cambridge, UK. [Google Scholar 5]
- [20] Jordà, S. (2008). "On Stage: the Reactable and other Musical Tangibles go Real". *International Journal of Arts and Technology*, 1-3/4: 268-287. [Google Scholar 9]
- [21] Jordà, S., Julià, C.F., Gallardo, D. (2010). "Interactive Surfaces an Tangibles". *Crossroads, ACM Magazine for Students* 4-16:21-28 [Google Scholar 1].

### Selection of peer reviewed conferences with the submitter as first or only author

(total as main author = 21/ total global = 43)

- [22] Jordà, S. (1991) A Real-Time Midi Composer and Interactive Improviser by Means of Feedback Systems, 1991 International Computer Music Conference, Proceedings of the 1991 International Computer Music Conference, 463-466. [Google Scholar 6]
- [23] Jordà, S. (2001) New Musical Interfaces and New Music-Making Paradigms. New Interfaces for Musical Expression Workshop (NIME-01), ACM SIGCHI, Seattle (USA). Proceedings of the 1st New Interfaces for Musical Expression Workshop. [Google Scholar 15]
- [24] Jordà, S. and Wust, O. (2001) A System for Collaborative Music Composition Over the Web. 12th International Workshop on Database and Expert Systems Applications. Technical University of Munich (Germany) Proceedings of the 12th International Workshop on Database and Expert Systems Applications, 537-542. [Google Scholar 8].
- [25] Jordà, S. (2001) Improvising with Computers: a Personal Survey (1989-2001). 2001 International Computer Music Conference. La Habana, Cuba. Proceedings of the 2001 International Computer Music Conference, ISBN 0-9713192-0-0, 1-8. [Google Scholar 29]. Swets & Zeitlinger Distinguished Paper Award" for the best paper presented at the International Computer Music Conference 2001, La Habana (Cuba).
- [26] Jordà, S. (2002) Afasia: the Ultimate Homeric one-Man-Multimedia-Band, New Interfaces for Musical Expression Conference (Nime 2002). MediaLab, Dublin (Ireland). Proceedings of the New Interfaces for Musical Expression Conference (Nime 2002), ISBN1-87465365-8, 132-137. [Google Scholar 33]
- [27] Jordà, S. (2003) Sonigraphical Instruments: From FMOL To the reacTable\*. *International*

Conference on New Interfaces for Musical Expression (Nime-03) McGill University, Montreal, Canada. Proceedings of the New Interfaces for Musical Expression Conference (Nime 2003), ISBN0-7717-0604, 70-76. [Google Scholar 53]

- [28] Jordà, S. (2004) Digital Instruments and Players: Part I- Efficiency and Apprenticeship. International Conference on New Interfaces for Musical Expression (Nime-04). Shizuoka University of Art and Culture (Hamamatsu, Japan). Proceedings of the New Interfaces for Musical Expression Conference (Nime 2004), ISBN4-9902099-0-7, 59-63. [Google Scholar 24]
- [29] Jordà, S. (2004) Digital Instruments and Players: Part II - Diversity, Freedom and Control. 2004 International Computer Music Conference University of Miami, Miami, USA. Proceedings of the 2001 International Computer Music Conference, ISBN 0-9713192-2-7, 706-709. [Google Scholar 8]
- [30] Jordà, S. (2005) Multi-User Instruments: Models, Examples and Promises. International Conference on New Interfaces for Musical Expression (Nime-05). University of British Columbia, Vancouver, BC, Canada, Vancouver (Canada). Proceedings of the New Interfaces for Musical Expression Conference (Nime 2005), ISBN0-88865-808-7, 23-26. [Google Scholar 15]
- [31] Jordà, S., Kaltenbrunner, M., Geiger, G., Bencina, R. (2005). The reacTable\*. 2005 International Computer Music Conference. Fundacio Phonos and Grup de Tecnologia Musical, University Pompeu Fabra, Barcelona (Spain). Proceedings of the 2005 International Computer Music Conference, 579-582. [Google Scholar 103]
- [32] Jordà, S., Geiger, G., Alonso, M., Kaltenbrunner, M. (2007) Exploring the Synergy between Live Music Performance and Tabletop Tangible Interfaces. First International Conference on Tangible and Embedded Interaction (TEI'07). Louisiana State University, Baton Rouge, LA, USA. Proceedings of the ACM First International Conference on Tangible and Embedded Interaction (TEI), 139-146. [Google Scholar 216].

**Selection of Keynote talks and Invitations to International Conferences** (among more than 40, given in Argentina, Canada, China, Colombia, Finland, France, Germany, Holland, Hungary, Italy, Mexico, Norway, Portugal, Serbia, Spain, Sweden, UK, Uruguay and USA)

- (2003) Interactive Music Systems for Everyone: Exploring Visual Feedback As A Way For Creating More Intuitive, Efficient and Learnable Instruments. Stockholm Music Acoustics Conference (SMAC03). Proceedings of the Stockholm Music Acoustics Conference, ISBN91-7283-559-1. Department of Speech, Music and Hearing, the Royal Institute of Technology (Kth), Stockholm, Sweden.
- (2011) Reactable: tecnología para la creatividad musical. TEDx Ramblas, Barcelona, January 2011. <http://www.tedxramblas.com/?p=879>.
- (2011) Digital Lutherie and Multithreaded Musical Performance: Artistic, Scientific and Commercial Perspectives. Keynote talk at the 2011 New Interfaces for Musical Expression Conference, Oslo, Norway, June 2011. <http://www.nime2011.org/program/keynote-speakers/>

#### Awards

- 1992 JoAn L'Home de Carn, First prize premio en el Concurso de instalaciones urbanas en la sexta muestra de L'H.ART de la ciudad de l'Hospitalet de Llobregat, Barcelona 1992. (with Marcel.lí Antúnez)
- 1998 FMOL software: First prize en la 3rd. Internacional Musical Software Competition, Bourges 98 (France).
- 1999 Special Mention "Premi Ciutat De Barcelona 1999" Multimedia category
- 2000 First prize Möbius Spain and Portugal Multimedia, Net.art 2000, Barcelona (with Cristina Casanova)
- 2000 Web DQ: Prize SGAE multimedia at the best original music, Madrid (with Cristina Casanova)
- 2000 Web DQ: Prize Arco – El Mundo 2001 for the best Net.art web, Madrid (with Cristina Casanova)
- 2001 Web DQ: Prix Möbius International de la culture artistique, Beijing (China) (with Cristina Casanova)
- 2001 "Swets & Zeitlinger Distinguished Paper Award" for the best paper in the Internacional Computer Music Conference 2001, La Habana (Cuba)
- 2007 Reactable: "Hot Instrument of the Year", Rolling Stone Magazine (USA) (with ERGI JORDÀ PUIG; GEIGER, Günter; KALTENBRUNNER, Martin; ALONSO)
- 2007 Reactable: "Premi Ciutat De Barcelona 2007" categoría Multimedia, Barcelona (with
- 2008 Reactable: Ars Electronica Prix Golden Nica "Digital Musics", Linz (Austria) (

- 2008 Reactable: Hottest Music Biz Start-Up Award, MIDEM, Cannes (France) (w
- 2008 Reactable: 2nd Price, INNOVA 8th Contest of Business Ideas, Barcelona
- 2008 Reactable: Yellow Pencil, D&AD Awards "Digital Installations", London (UK)
- "Environmental Design / Installations", 2008
- 2011 Reactable Mobile: App Store. Top 10 Music App Worldwide (Reactable Systems)
- 2011 Reactable Mobile: iTunes Rewind 2010. Best Music Apps (Reactable Systems)
- 2011 Reactable Mobile: Best Music App Ever. 2nd and 3rd Place (Reactable Systems)
- 2011 Reactable Mobile: Brit Insurance Designs of the Year. Interactive category nomination (Reactable Systems)