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ACADEMIC HISTORY

University of Toronto

- 2001-2007 Ph.D. Department of Computer Science
Thesis Title: Pressure-Sensitive Pen-Based Interactions
Supervisor: Ravin Balakrishnan
- 2001 M.Sc., Department of Computer Science
Thesis Title: Scattered Data Interpolation Using an Alternate Differential
Equation Interpolant
Supervisor: Wayne Enright

Universidad de Buenos Aires

- 1998 Licenciado en Ciencias de la Computación
Thesis Title: The Compression of Fingerprint Images Using Wavelets
Supervisors: Eduardo Rodriguez, Jorge Sanz
- 1995 Analista Universitario de Sistemas

RESEARCH SUMMARY

- 2007 **Pen Rolling Interaction.** *In collaboration with Bi X, Moscovich T, Balakrishnan R (University of Toronto), and Hinckley K (Microsoft Research).* – We explore pen rolling as a supporting input modality for pen-based interaction. We have identified two important parameters: a) what separate intentional pen rolling for the purpose of interaction from incidental pen rolling caused by regular writing and drawing, and b) the range within which accurate and timely intentional pen rolling interactions can occur. We currently investigate the design space of rolling-based interaction techniques, through a number of scenarios where pen rolling interactions can be useful.

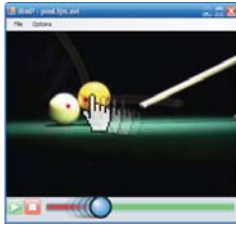


2007



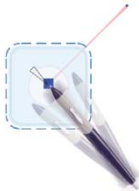
OpenMessenger. *In collaboration with Birnholtz J. (Cornell University), Gutwin C (University of Saskatchewan). and Watson M. (Institute without Boundaries)* – We have developed a prototype message system that adds the idea of gradual initiation of interaction to on-line communication. This system provides both multiple levels of awareness about people, and notification to those about whom information is being gathered. We argue that this system allows people to negotiate interaction in a richer fashion than is possible with any other current messaging system.

2007



Video Browsing by Direct Manipulation. *In collaboration with Dragicevic P. (University of Toronto, INRIA), Bibliowicz J., Nowrouzezahrai D., Balakrishnan R., Singh K. (University of Toronto)* – We present a method for browsing videos by directly drag-ging their content. This method brings the benefits of direct manipulation to an activity typically mediated by widgets. We support this new type of interactivity by: 1) automati-cally extracting motion data from videos; and 2) a new technique called relative flow dragging that lets users con-trol video playback by moving objects of interest along their visual trajectory. We show that this method can out-perform the traditional seeker bar in video browsing tasks that focus on visual content rather than time.

2006



Pointing Lenses. *In collaboration with, Balakrishnan, R., Cockburn, A. and Beaudouin-Lafon, M., University of Toronto, University of Canterbury, Université Paris-Sud* – We present pointing lenses, interaction techniques that help users acquire and select targets by offering them an enlarged visual and interaction area. Our experimental results not only show that pointing lenses are beneficial for targets smaller than 5 pixels, but they also suggest that this benefit may extend to larger targets as well.

2006



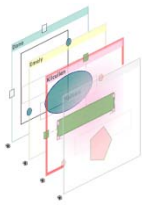
Pressure Marks. *In collaboration with Balakrishnan, R.* – Pressure marks are pen strokes where the variations in pressure make it possible to indicate both a selection and an action simultaneously. Our studies show that Pressure Marks are not only a viable interaction, but also let users perform faster selection-action interactions than do state-of-the-art sequential methods. We present a number of interaction designs that incorporate pressure marks.

2006



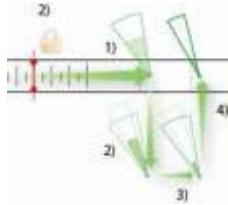
Phosphor. *In collaboration with Baudisch, P., Tan, D., Collomb, M., Robbins, D., Hinckley, K., Agrawala, and M., Zhao, S., Microsoft Research* – Phosphor objects show the outcome display changes instantly. At the same time they explain these change in retrospect. We present a framework of transition designs for phosphor widgets, icons, and objects in drawing programs. Our evaluations of phosphor objects reveal significant performance benefits when compared with traditional techniques.

2006



Tumble! Splat! *In collaboration with Robertson, G., Czerwinsky, M., Tan, D., Baudisch, P., Hinckley, K., Agrawala, M., Robbins, D, Microsoft Research* – Accessing and manipulating occluded content in 2D drawings can be difficult. We introduce Tumbler and Splatter, two new tools to help users in these tasks. We present the results of a study that contrasts these two new techniques with a traditional scene index used in most drawing applications.

2005



Zliding. *In collaboration with Balakrishnan, R. University of Toronto* – Precise parameter manipulation tasks typically require adjustment of the scale of manipulation in addition to the parameter itself. We introduces the notion of Zoom Sliding (Zliding) for fluid integrated manipulation of scale via pressure input while parameter manipulation within that scale is achieved via x-y cursor movement. We also present the Zlider, a widget that instantiates the Zliding concept.

2005



Pigtails & Scriboli. *In collaboration with Hinckley, K., Baudisch, P., and Guimbretiere, F.* – We present a quantitative analysis of delimiters for pen gestures. Also, we introduce the Pigtail, a novel interaction technique that uses a small loop to delimit a gesture. We show how Pigtail supports integrated scope selection, command activation, and direct manipulation all in a single fluid pen gesture.

2004



Stitching. *In collaboration with Hinckley, K., Baudisch, P., Guimbretiere, F. and Smith.* – We present Stitching, a new interaction technique that allows users to combine pen-operated mobile devices by using pen gestures that span multiple displays. To stitch, a user starts moving the pen on one screen and finishes the stroke on the screen of a nearby device. We demonstrate different applications that take advantage of stitching and discuss design issues that arise from the sociological implications of users collaborating in close quarters.

2004



Pressure Widgets. *In collaboration with Boulos, M., and Balakrishnan, R.* – Current GUIs assume that input devices only provide position and button press information. Other inputs such as the pressure provided by styli on tablets are rarely used. We explore the design space of using the pressure sensing capabilities of styli to operate multi-state widgets. Based on experimental results, we discuss implications for the design of pressure sensitive widgets. Finally, we propose a taxonomy of pressure widgets, along with a set of initial concept sketches of widget designs.

2003



Fluid Interaction Techniques for the Control and Annotation of Digital Video. *In collaboration with Balakrishnan, R.* – We explore novel interactive visualization techniques supporting the fluid navigation, segmentation and annotation of digital videos. We developed these techniques within a concept prototype that leverages pressure-sensitive digitizer tablets. We show how pressure information has the potential to expand, in a simple manner, the vocabulary of gestures available to users. We also elaborate on how annotations referring to objects that are temporal in nature, such as video, can be thought of as links, and fluidly constructed, visualized and navigated.

AWARDS AND SCHOLARSHIPS

2005-2007	Microsoft Research Fellowship
2006	University of Toronto Doctoral Completion Grant
1999-2004	University of Toronto, Computer Science Graduate Scholarship

REFERRED PAPERS AND JOURNAL ARTICLES

2009	Synchronous Gestures in Multi-Display Environments. Ramos, G., Hinckley, K., Wilson, A., Sarin, R. <i>To appear on the Special Issue on Ubiquitous Multi Display Environments of the Human-Computer Interaction Journal</i> – Taylor & Francis Editors.
2008	An Exploration of Pen Rolling for Pen-based Interaction. Bi X., Moscovich T., Ramos G., Balakrishnan R., Hinckley K. <i>To appear in the proceedings of the 21st annual ACM symposium on User interface software and technology (UIST).</i>
2008	Video browsing by direct manipulation. Dragicevic, P., Ramos, G., Bibliowicz, J., Nowrouzezahrai, D., Balakrishnan, R., & Singh, K. <i>In Proceeding of the 26th annual SIGCHI conference on Human factors in computing systems (CHI), pp. 237-246</i>
2008	OpenMessenger: gradual initiation of interaction for distributed workgroups. Birnholtz, J. P., Gutwin, C., Ramos, G., and Watson, M. <i>In Proceeding of the 26th annual SIGCHI conference on Human factors in computing systems (CHI), pp. 1661-1664.</i>
2007	Pointing Lenses: Facilitating Stylus Input through Visual- and Motor-Space Magnification. Ramos, G., Cockburn, A. Beaudouin-Lafon, M., and Balakrishnan, R. <i>In Proceeding of the 25th annual SIGCHI conference on Human factors in computing systems (CHI), pp. 757-766</i>

- 2007 **Pressure Marks.** Ramos, G., and Balakrishnan, R. *In Proceeding of the 25th annual SIGCHI conference on Human factors in computing systems (CHI)*, pp. 1375-1384
- 2006 **Phosphor: Explaining Transitions in the User Interface Using Afterglow Effects.** Baudisch, P., Tan, D., Collomb, M., Robbins, D., Hinckley, K., Agrawala, M., Zhao, S., and Ramos, G. *In Proceedings of the 19th annual ACM symposium on User interface software and technology (UIST)*, pp. 169-178.
- 2006 **Tumble! Splat! Helping Users Access and Manipulate Occluded Content in 2D Drawings.** Ramos, G., Robertson, G., Czerwinsky, M., Tan, D., Baudisch, P., Hinckley, K., Agrawala, M., Robbins, D. *In Proceedings of the working conference on Advanced visual interfaces (AVI)*, pp. 428-435.
- 2005 **Zliding: Zooming and Sliding for High-Precision Parameter Manipulation.** Ramos, G., Balakrishnan, R. *In Proceedings of the 18th annual ACM symposium on User interface software and technology (UIST)*, pp. 143-152.
- 2005 **Design and Analysis of Delimiters for Selection-Action Pen Gesture Phrases in Scriboli.** Hinckley, K., Baudisch, P., Ramos, G., Guimbretiere, F. *In Proceedings of the SIGCHI conference on Human factors in computing systems (CHI)*, pp. 451-460.
- 2004 **Stitching: Pen Gestures that Span Multiple Displays.** Hinckley, K., Ramos, G., Baudisch, P., Guimbretiere, F. and Smith, M. *In Proceedings of the working conference on Advanced visual interfaces (AVI)*, pp. 23-31.
- 2004 **Pressure Widgets.** Ramos, G., Boulos, M., Balakrishnan, R. *In Proceedings of the SIGCHI conference on Human factors in computing systems (CHI)*, pp. 487-494.
- 2003 **Fluid Interaction Techniques for the Control and Annotation of Digital Video.** Ramos, G., Balakrishnan, R. *In Proceedings of the 16th annual ACM Symposium on User Interface Software and Technology (UIST)*, pp 105-114.

OTHER PUBLICATIONS

- 2004 **Visual Features and Interference in Pressure Widgets.** Ramos, G., Balakrishnan, R. *University of Toronto, Dynamic Graphics Project Technical report DGP-TR-2004-003.*

2004 **Stitching: Connecting Wireless Mobile Devices with Pen Gestures.** Hinckley, K., Ramos, G., Guimbretiere, F., Baudisch, P., Smith, M. *Video appearing in the ACM Conference on Computer Supported Cooperative Work (CSCW).*

EMPLOYMENT SUMMARY

Microsoft Live Labs

2007-present **Scientist** - Live Labs Research

Microsoft Research

2005 Research Internship – The Visualization and Interaction for Business and Entertainment (VIBE) Group. Mentor: George Robertson.

2004 Research Internship – The Adaptive Systems & Interactions (ASI) Group. Mentor: Ken Hinckley.

2003 Research Internship – The Adaptive Systems & Interactions (ASI) Group. Mentor: Ken Hinckley.

Department of Computer Science – University of Buenos Aires

1998-1999 Network / System Administrator

Imagenes Digitales S.A. – Buenos Aires, Argentina

1994-1998 Biometric Solutions and Technology Consultant

Centro Instrumental S.A. - Buenos Aires, Argentina

1993 X25 Network Specialist and Technician

Self Employed - Buenos Aires, Argentina

1987-1991 Independent Computer Programmer

PRESENTATIONS

2008 **Video browsing by direct manipulation.** *Invited research speaker at Intel Research Labs, Seattle, USA, May 2008.*

2008 **Towards Pressure-Aware Pen Interactions.** *Seminar delivered at the DUB group at the University of Washington, Washington, USA. February 2008.*

- 2008 **Video browsing by direct manipulation.** *Paper presented at the 26th annual SIGCHI conference on Human factors in computing systems (CHI), Firenze, Italy, April 2008.*
- 2007 **Pointing Lenses: Facilitating Stylus Input through Visual- and Motor-Space Magnification.** *Paper presented at the 25th annual SIGCHI conference on Human factors in computing systems (CHI), San Jose, USA, April 2007.*
- 2007 **Pressure Marks.** *Paper presentation at the 25th annual SIGCHI conference on Human factors in computing systems (CHI), San Jose, USA, April 2007.*
- 2006 **Tumble! Splat! Helping Users Access and Manipulate Occluded Content in 2D Drawings.** *Paper presentation at the working Conference on Advanced Visual Interfaces (AVI), Venice, Italy, May 2006.*
- 2005 **Zliding: Zooming and Sliding for High-Precision Parameter Manipulation.** *Paper presentation at the 18th annual ACM Symposium on User Interface Software and Technology (UIST), Seattle, USA, October 2005.*
- 2004 **Pressure Widgets.** *Paper presentation at the Conference on Human Factors in Computing Systems (CHI), Vienna, Austria, April 2004.*
- 2003 **Fluid Interaction Techniques for the Control and Annotation of Digital Video.** *Paper presentation at the 16th annual ACM Symposium on User Interface Software and Technology (UIST), Vancouver, Canada, November 2003.*

SERVICE

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- 2008-2009 **Program Comitee Member** – International Conference on Intelligent User Interfaces (IUI).
- 2008-2009 **Interactivity Co-Chair** – ACM Conference on Human Factors in Computing Systems (CHI)
- 2006-2008 **CHI “Madness” Session Co-Chair** – I am served as a co-chair at the "Madness" Session at the ACM Conference on Human Factors in Computing Systems (CHI) in 2007 and 2008. The "Madness" event provides authors a podium where they have a chance to give a glimpse of their papers in 40 seconds.

- 2006 **Demo Session Co-Chair** – ACM Symposium on User Interface Software & Technology (UIST) 2006. Demo submissions for UIST are peer-reviewed.
- 2006 **Sketches Reviewer** – ACM International Conference and Exhibition on Computer Graphics and Interactive Technologies (SIGGRAPH)
- 2006 **Journal Reviewer** – Interacting with Computers.
- 2002-Present **Paper Reviewer** – ACM Symposium on User Interface Software & Technology (UIST).
- Paper Reviewer** – ACM Conference on Human Factors in Computing Systems (CHI).
- Paper Reviewer** – Conference for the European Association for Computer Graphics.

TEACHING EXPERIENCE

- 2002 **Instructor : CSC228H File Structures and Databases** – It was my responsibility to develop and deliver all lectures, to coordinate with my teaching assistants and with other course instructors on two different campuses, to create assignments and their marking schemes, to mentor students, and to prepare and submit the final course grades.
- 1999-2006 **Teaching Assistant.** – I planned and delivered tutorials, as well as graded assignments, reports and exams in coordination with the faculty instructors. These courses included:
- CSC490 - Capstone Design Course on Innovative Use of Tablet-Computers for Interactive Tasks
 - CSC318H - The Design of Interactive Computational Media
 - CSC318H - Topics in Human Computer Interaction
 - CSC104H- The Why and How of Computing
 - CSC428/2514H - Human Computer Interaction
 - CSC209H- Software Tools and Systems Programming
 - CSC418/2504H - Computer Graphics

SKILLS

Programming – Extensive experience in C, C++, C#, WPF/Silverlight, Java, HTML, Perl, SQL, Basic, Pascal, Fortran, Assembler (Intel 80x86; Zilog Z-80).

OS & Platforms – Use and application development under DOS, Windows, Windows Mobile, Unix, and Linux.

Scientific Software – Knowledge of Matlab, Mathcad, Scilab, SAS, SPSS.

Design and Editing Suites – Experienced user of Corel Draw, Corel Photo Paint, Adobe Photoshop, Adobe Illustrator, Macromedia DreamWeaver, Adobe Premiere.

Hardware – Electric and network installations, PCs repair and maintenance.

LANGUAGES

English – Fluent speaking, reading and writing

Spanish – Native

REFERENCES

Available upon request