NICOLE B. SULTANUM

University of Toronto

PhD Student in Computer Science

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ABOUT MYSELF

*My research interests fall on visual interaction—encompassing **human-computer interaction** (HCI), **data visualization** and **computer graphics**—and its many embodiments and applications. I am keen on applied research, and have worked on a variety of projects in academia and industry covering a wide range of application domains, from education and training, games, arts & design to oil & gas and medicine. More recently, I've been interested in how to better support quality understanding of large collections of text.*

EDUCATION

University of Toronto, Canada – Department of Computer Science, Fall 2015-*present*
PhD In Computer Science (*ongoing*)
- Supervisors : *Fanny Chevalier and Michael Brudno*

University of Calgary, Canada – Department of Computer Science, Fall 2009- Summer 2011
MSc in Computer Science, August 2011
- Thesis : *Exploring Novel Interfaces for 3D Visualization of Reservoir Simulation Post-Processing Data*
- Supervisors : *Mario Costa Sousa and Ehud Sharlin*

Federal University of Pernambuco (UFPE), Brazil, Informatics Centre *(Centro de Informática - CIn)*, 2004-2008
BSc in Computer Science, August 2008
- Graduation Research Project Title: *Interactive Ink Brushstroke Simulation via Tablets* (original title: *"Simulação interativa de traços em tinta e pincel através do tablet"*)
- Supervisor: *Silvio Melo*
- Available at: *http://www.cin.ufpe.br/~tg/2008-1/nbs2.zip* (in Portuguese)

GPA: *9.31/10.0*

PROFESSIONAL EXPERIENCE

IBM Research Brazil,
Research Software Engineer, June 2012 – July 2015
Industrial research on Visualization and HCI applied to Natural Resources, with efforts also encompassing project proposal elaboration, patents, publications and multidisciplinary development.

Interactive Reservoir Modeling and Visualization Research Group,
Department of Computer Science, University of Calgary, Canada
Research Assistantship, November 2011 – May 2012
Interactive models and platforms for visualization on oil /gas exploration and production, with a focus on interactive multi-touch displays and surface computing technology for visual interactive exploration petroleum data. Other activities include visual support of computational steering of reservoir simulations, TA-ship duties and student work supervision.

GCF Sistemas
Professional Traineeship, March 2008 – June 2009
C# Development and project management of applications for commerce and ERP.

AWARDS

ACM CHI 2018 - Honorable Mention
Montreal, Apr 2018
Granted to the top 5% (minus top 1%) submissions to CHI 2018 (101/2590 submissions)

Wolfond Scholarship Program in Wireless Information Technology
University of Toronto, Sept 2015 – Aug 2017 - $10,000/year for 2 years
The Wolfond Scholarship in Wireless Information Technology was established by Greg Wolfond to recognize outstanding scholars pursuing research in areas relating to mobile computing, wireless information technology, networks, human-computer interaction, and digital media.

Top of Class Award – 9.31/10.0
Federal University of Pernambuco (UFPE), Aug 2008
Honors status granted to the student with highest overall average in the Computer Science class of 2008.1 (i.e., 2008 1st Semester).

PUBLICATIONS

1. **N. Sultanum**, D. Singh, M. Brudno, F. Chevalier. [2018]. **Doccurate: A Curation-Based Approach for Clinical Text Visualization.** IEEE transactions on Visualization and Computer Graphics. *(journal pre-print, accepted at VAST 2018)*

2. **N. Sultanum**, M. Brudno, D. Wigdor, F. Chevalier. [2018] **More Text Please! Understanding and Supporting the Use of Visualization for Clinical Text Overview.** Proceedings of the 2018 CHI conference on Human Factors in Computing Systems (CHI'18), p. 422, April 2018, Montreal, QC, Canada. *(full paper, Honorable Mention)*

3. **N. Sultanum**, P. Thaine, M. Brudno, M. Glueck, D. Wigdor and F. Chevalier. [2017] **MedStory: Unlocking the Qualitative Power of Medical Narratives.** Proceedings of 8th Workshop on Visual Analytics in Healthcare (VAHC), October 2017, Phoenix, Arizona. (2-page *extended abstract + poster presentation*).

4. M.A.S. Netto, R.L.F. Cunha, **N. Sultanum.** [2015] **Deciding When and How to Move HPC Jobs to the Cloud**. IEEE Computer 11, pp. 86-89, November 2015 (*magazine article*)

5. **N. Sultanum**, M. Motta, C. Cardonha and R. Herrmann. [2014] **Watchboard: Curated Microblogging for the Enterprise.** *Proceedings of CHI'14 Extended Abstracts on Human Factors in Computing Systems*, pp. 2107-2112, May 2014, Toronto, Canada *(extended abstract + poster presentation)*

6. **N. Sultanum**, E.V. Brazil and M.C. Sousa. [2013] **Navigating and Annotating 3D Geological Outcrops Through Multi-touch Interaction.** *Proceedings of ACM International Conference on Interactive Tabletops and Surfaces (ITS '13)*, pp. 345-348, October 2013, St Andrews, UK *(extended abstract + poster presentation)*

7. M. Tozser, **N. Sultanum**, E. Sharlin, K. Rutheford and C. Foster [2012] **Re-collision: a collision reconstruction forensics tabletop**. *Proceedings of ACM International Conference on Interactive Tabletops and Surfaces (ITS '12)*, pp. 81-84, November 2012, Cambridge, MA *(short paper)*

8. P. Lapides, **N. Sultanum**, E. Sharlin and M.C. Sousa [2012] **Seamless Mixed Reality Tracking in Tabletop Reservoir Engineering Interaction**. *Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI '12)*, pp. 725-728, May 2012, Anacapri, Italy *(extended abstract + poster presentation)*

9. **N. Sultanum**, S. Somanath, E. Sharlin and M.C. Sousa [2011] **"Point it, Split it, Peel it, View it": Techniques for Interactive Reservoir Visualization on Tabletops**. *Proceedings of ACM International Conference on Interactive Tabletops and Surfaces (ITS '11)*, pp. 192-201, November 2011, Kobe, Japan *(full paper)*

10. J. Harris, J. Young, **N. Sultanum**, P. Lapides, E. Sharlin and M.C. Sousa [2011] **Designing Snakey: A Tangible User Interface Supporting Well Path Planning**. *Proceedings of 13th IFIP TC13 Conference on Human-Computer Interaction (INTERACT '11)*, pp. 45-53, September 2011, Lisbon, Portugal *(short paper)*.

11. J. Harris, J. Young, **N. Sultanum**, P. Lapides, E. Sharlin and M.C. Sousa [2011] **Snakey: A Tangible User Interface for Well Path Planning in the Context of Reservoir Engineering**. *Technical Report 2011-1003-15*, May 26, 2011, Department of Computer Science, University of Calgary, AB, Canada

12. **N. Sultanum**, E. Sharlin, M.C. Sousa, D.N. Miranda-Filho and R. Eastick [2010] **"Touching the Depths": Introducing Tabletop Interaction to Reservoir Engineering**. *Proceedings of the ACM Conference on Interactive Tabletops and Surfaces (ITS '10)*, pp. 105-108, November 2010, Saarbrücken, Germany *(short paper)*

13. **N. Sultanum** and S. Melo [2008] **SketchSim: Interactive Simulation of Ink Brushstrokes**. *Workshop of Undergraduate Work - WUW, in Electronic Proceedings of XXI Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI '08)*, October 2008, Campo Grande, Brazil *(extended abstract + poster presentation)*

14. Gurgel**,** **N. Sultanum**, R. Lopes Arcoverde, E.W. Almeida, P. Tedesco [2006] **A Importância de Avaliar a Usabilidade dos Jogos: A Experiência do Virtual Team**. *V Brazilian Symposium on Computer Games and Digital Entertainment (SBGames)*, November 2006, Recife, Brazil *(full paper, in Portuguese)*

15. A.S. Gomes, C. Araújo, D. Arruda, **N. Sultanum**, L. Paiva, L. Menezes [2006] **Participação de professores de matemática no desenvolvimento de aplicações educativas computacionais para o ensino de estruturas aditivas**. *Electronic Proceedings of Pernambucan Meeting on Mathematics Teaching (EPEM '06)*, 2006, Caruaru, Brazil *(workshop paper, in Portuguese)*

PATENTS   (authors listed in alphabetical order)

1. M.A.S. Netto, **N. Sultanum** and R.L.F. Cunha, International Business Machines Corp [2018]. **User interface and system supporting user decision making and readjustments in computer-executable job allocations in the cloud.** US Patent Application 15/989,276.
Filing 2018-05-25 • Publication 2018-09-27

2. K. Mantripragada, U. Mello, R.H. Nemoto, L.C.V. Real and **N. Sultanum**, International Business Machines Corp [2017] **System and method for tracking pollution.** U.S. Patent Application 15/840,470.
Filing 2017-12-13 • Publication 2018-04-12

3. C.H. Cardonha, S. Mazon, D.L.N.C. Pereira, and **N. Sultanum**, International Business Machines Corp [2017] **Contextual text adaptation.** U.S. Patent 9,519,871.
Filing 2016-08-02 • **Grant 2017-06-06** • Publication 2017-06-06

4. C.H. Cardonha, R.A. de Paula and **N. Sultanum**, International Business Machines Corp, [2017] **Personalized content selection for time-constrained sessions.** U.S. Patent Application 15/084,804.
Filing 2016-03-30 • Publication 2017-10-05

5. C.H. Cardonha, and **N. Sultanum**, International Business Machines Corp [2017] **System and method for the identification of personal presence and for enrichment of metadata in image media.** U.S. Patent 9,798,742.
Filing 2015-12-21 • **Grant 2017-10-24** • Publication 2017-10-24

6. C.H. Cardonha, R.G. Herrmann, M.M. Motta and **N. Sultanum**, International Business Machines Corp [2015] **Personalized aggregator for organizing and publishing public and private content.** U.S. Patent Application 14/624,931.

Filing 2015-02-18 • **Grant 2018-04-17** • Publication 2018-04-17

7. C.H. Cardonha, R.G. Herrmann, M.M. Motta, and **N. Sultanum**, International Business Machines Corp [2017] **Generating navigable content overviews.** U.S. Patent 9,582,574.
Filing 2015-01-06 • **Grant 2017-02-28** • Publication 2017-02-28

8. A.P.Binotto, K. Mantripragada, , A.C.N. Junior, M.A.S. Netto , **N. Sultanum** and L.P. Tizzei, International Business Machines Corp [2016] **Efficient facilitation of human review and computational analysis.** U.S. Patent Application 14/537,180.
Filing 2014-11-10 • Publication 2016-05-12

9. F.L. Koch and **N. Sultanum**, International Business Machines Corp [2017] **Non-subjective quality analysis of digital content on tabletop devices**. U.S. Patent 9,842,341.
Filing 2014-04-30 • **Grant 2017-12-12** • Publication 2017-12-12

10. K. Mantripragada, L. V. Real, **N. Sultanum**, International Business Machines Corp [2014] **Apparatus and methods for co-located social integration and interactions.** U.S. Patent Application 13/969,077.
Filing 2013-02-06 • Publication 2014-08-07

INVITED RESEARCH TALKS

Information Visualization – Computing for Medicine
- *University of Toronto, Canada (2018)*

Introduction to Data Visualization: Theory and Practice (Full day workshop)
- *University of Toronto, Canada (2017)*

Introduction to Data Visualization: Theory and Practice (in portuguese) (Full day workshop)
- *LNCC (Laboratório Nacional de Computação Científica), Brazil (2014)*

Exploring Novel Interfaces for 3D Visualization of Reservoir Flow Simulation Data
- *University of Bristol, UK (2011)*

Exploring Novel Interfaces for 3D Visualization of Reservoir Simulation Post-Processing Data
- *Heriot-Watt University, UK (2011)*
- *Imperial College London, UK (2011)*
  Federal University of Pernambuco (UFPE) (2011)

Interactive Collaborative Visualization for Reservoir Engineering
- *Federal University of Pernambuco (UFPE) (2010)*

TEACHING EXPERIENCE

Teaching Assistantship, University of Toronto
- *The Design of Interactive Computational Media* (Fall 2015, Winter 2016, Fall 2016, Winter 2018)
- *Theory and Methods in Knowledge Media Design* (Fall 2017)
- *Information Architecture* (Fall 2016)
- *Video Game Design* (Winter 2017)
- *Topics in Computational Biology – Computational Methods in Medicine* (Winter 2018)
- *Introduction to Data Science* (Summer 2018) (*Course Design assistantship*)

Teaching Assistantship, University of Calgary
- *Introduction to Human-Computer Interaction* (Fall 2009)
- *Introduction to Human-Robot Interaction* (Winter 2012) *(Course advisor)*

Teaching Assistantship, Federal University of Pernambuco (UFPE)
- *Introduction to Programming:* 2nd semester 2004 - 1st semester 2006 (4 semesters total)
- *Logics for Computer Science:* 1st semester 2005 - 1st semester 2006 (3 semesters total)
- *Informatics Theory (Theory of Computation):* 2nd semester 2006
- *Image Processing:* 1st semester 2007

SERVICE EXPERIENCE

Associate Chair
- ACM CHI Conference on Human Factors in Computing Systems (**CHI**) – *Late Breaking Work* - **2018**

Reviewer
- ACM International Conference on Tangible, Embedded and Embodied Interaction (**TEI**) – **2013, 2014, 2015**
- ACM Conference on Computer-Supported Cooperative Work and Social Computing (**CSCW**) – **2014**
- ACM CHI Conference on Human Factors in Computing Systems (**CHI**) – **2016, 2017**
- IEEE International Symposium on Robot and Human Interactive Communication (**RO-MAN**) – **2017**
- International Conference on Human-Computer Interaction with Mobile Devices and Services (**MobileHCI**) – **2017**
- International Conference on Graphics, Visualization & Human-Computer Interaction (**GI**) – **2018**
- IEEE Conference on Visual Analytics Science and Technology (**VAST**) – **2018**

Student Volunteer
- ACM User Interface Software and Technology Symposium (**UIST**) - **2018**
- ACM CHI Conference on Human Factors in Computing Systems (**CHI**) – **2012, 2017, 2018**
- ACM International Conference on Interactive Surfaces and Spaces (**ISS**) – **2016**
- ACM International Conference & Exhibition on Computer Graphics and Interactive Techniques (**SIGGRAPH**) – **2009, 2010, 2011**