John Alexis Guerra Gómez

I do **Visual Analytics**, i.e., I include the **user** in the big data analysis/science loop.
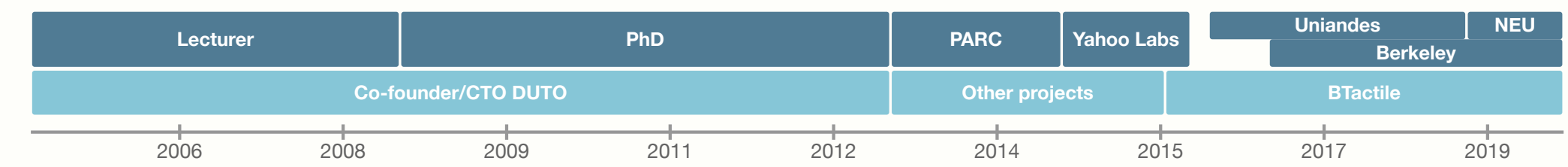
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PDF Version

In a nutshell

Information Visualization Researcher and Engineer. I help people extract insights from their data using interactive infovis and data science. PhD in Computer Science, Lecturer at the Master in Data Science at UCBerkeley and at Uniandes Colombia. I conduct research on Visual Analytics, Accessibility, Human Computer Interaction and Web Development

Experience

- 10 years as a researcher on Information Visualization. Portfolio
- 17 years as a full stack engineer
- 11 years on teaching at university level
- 30+ research publications at major conferences such as CHI, IEEEVIS, AVI, TRB
- AC of toCHI 2016, Creativity and Cognition 2017/2018/2019, Graph Drawing 2017. Reviewer for CHI, IEEEVIS, AVI, EuroVis and UIST
- 15 years as public speaker, e.g. Openvis2017, TEDx, Singularity University Summit Colombia 2018, Halliburton's STEPS Distinguished Lecture series on Big Data in Exploration and Production 2018
- Entrepreneur co-founder of DUTO, KebSolutions, Tweetometro.co and BTactile, with more than 10 international entrepreneurship awards

My Skills

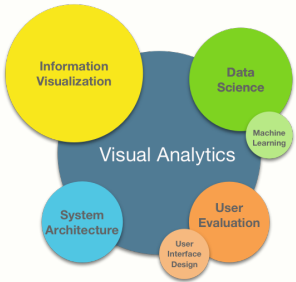## The tools and techniques I use

Experience and Education

Lecturer	PhD	PARC	Yahoo Labs	Uniandes	NEU
				Berkeley	
Co-founder/CTO DUTO		Other projects		BTactile	

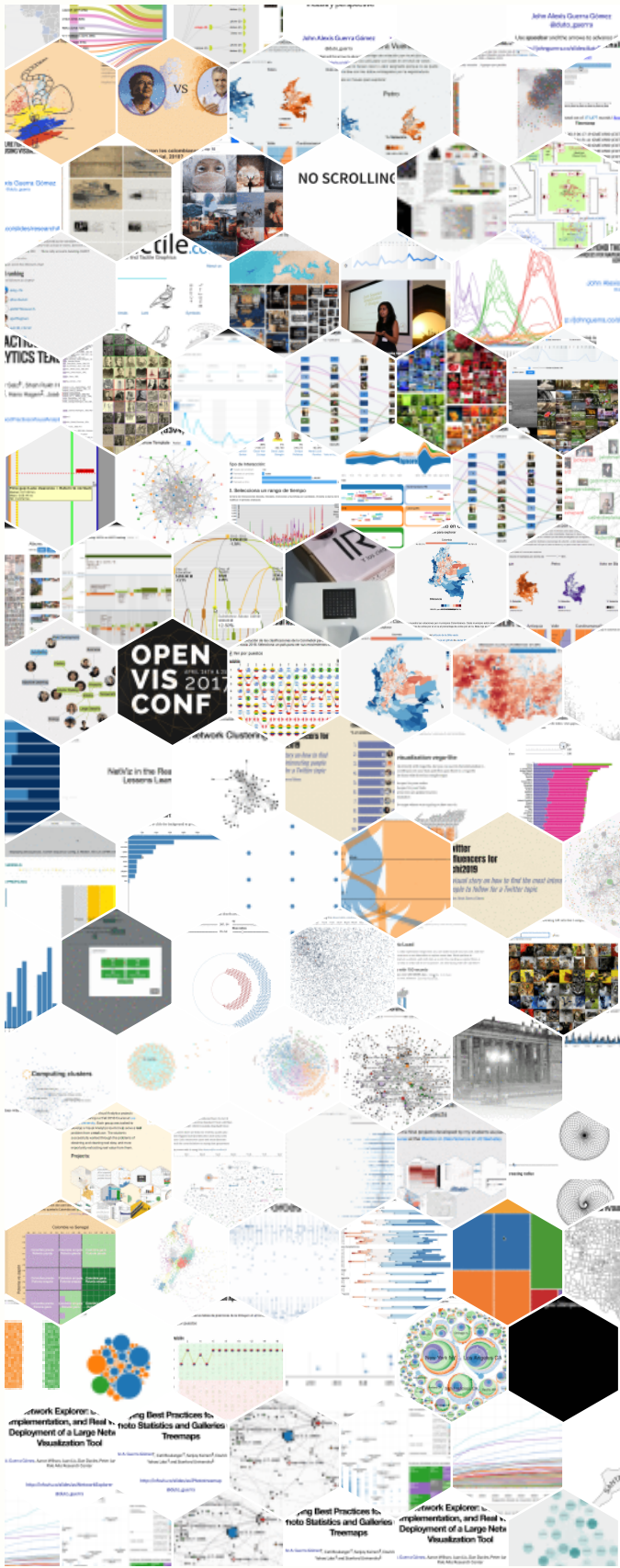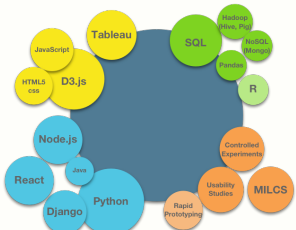| 2006 | 2008 | 2009 | 2011 | 2012 | 2014 | 2015 | 2017 | 2019 |

Things I'm proud of

Uniandes
- Conducted research on large dataviz, network visualization and photo visualization and accessibility
- Redesigned and taught the Visual Analytics and Web Development classes .

Berkeley
- Remote Lecturer at Berkeley's online Master in Data Sciece. Teaching W209 Data Communication and Visualization. Student projects: Fall '18, Summer '18, Spring '18, Fall '17, Summer '17.

Yahoo Labs
- Exploring information visualization interfaces for navigating big repositories of photos.
- Helped redesigned **Flickr stats**.
- Developed and deployed a visualization for better exploring the organizational units that is being used company wide.
- Modified Flickr code to add a new photo navigation visualization.
- Four papers accepted in two major conferences (CHI2016 and AVI2016).
- Created visual analytics for dozens of complex Yahoo datasets.

Parc
- Created Network Explorer a visual network analytics tool to explore hundreds of thousands of nodes, which was implemented, among others, in a Fraud, Waste and Abuse solution from Xerox and is being used for detecting fraud in Health Care networks.
- Constructed several dashboards using Tableau.
- Developed and integrated several other time-based and text based visualizations in 3 different products.

Other Projects
- Co-founded and developed BTactile a platform to index 5000 tactile graphics for the blind from all over the world using Meteor.js and React.
- **OpenVis 2017 Speaker** with Untangling the Hairball, slides.
- Creator of RevealVizScroll an open source library for creating scrollytelling-like stories using reveal.js
- Creator of force-in-a-box and netClustering.js.
- Co-creator of tweetometro.co a platform to monitor Twitter activity for the Colombian presidential election.
- Creator of WholikesMyFB.com a Facebook app to explore who likes your post the most.

PhD
- **PhD** and **MSc** in Computer Science under the supervision of Dr. Ben Shneiderman and Dr. Catherine Plaisant at the University of Maryland (2013).
- Created the **StemView** a visualization technique that represents 5 characteristics of change in trees.
- Created the **Bullet** a visualization glyph that represents 4 characteristics of change in trees.
- Implemented TreeVersity2 a visual analytics web application to explore change in datasets over time.
- Implemented TreeVersity a visual analytics desktop application to compare changes between two trees.
- Conducted 13 case studies with 9 domain experts to validate TreeVersity and TreeVersity2.

Academic Lecturer
- Winner of the Fulbright Science and Technology scholarship (40 people awarded in the world yearly).
- Lecturer in a wide range of undergrad courses from Programming to Distributed Systems.

DUTO
- **Co-founder** of DUTO and Co-creator of IRIS a system that allows blind students to see with their hands.
- **CTO** and responsible of all the software development in the company.
- Winner of more than 10 international entrepreneurship awards.

Publications (38)

Visualization (10)

2019 [BioCicle: A Tool for Summarizing and Comparing Taxonomic Profiles out of Biological Sequence Alignments](#)
Meili Vanegas-Hernandez, Fabio Andres Lopez-Corredor, Tiberio Hernandez, Alejandro Reyes, **John Alexis Guerra-Gomez**
BioVis@ISMB 2019
Conference

2019 [Extracting and visualizing a new classification system for Colombia's National Administrative Department of Statistics. A visual analytics framework case study](#)
Pierre Raimbaud, Jaime Camilo Espitia Castillo, **John Alexis Guerra-Gomez**
V Jornadas Iberoamericanas de Interacción Humano-Computador 2019
Conference

2019 [Extracting and visualizing a new classification system for Colombia's National Administrative Department of Statistics. A visual analytics framework case study](#)
Pierre Raimbaud, Jaime Camilo Espitia Castillo, **John Alexis Guerra-Gomez**
Human-Computer Interaction
Journal

2018 [Understanding world happiness: An information visualization application case of the World Happiness Report](#)
Nychol Bazurto-Gomez, Carlos F. Torres, Raul Gutierrez, Mario Chamorro, Claire Bulger, Tiberio Hernandez, John A. Guerra-Gomez
IV Jornadas Iberoamericanas de Interacción Humano Computador
Conference

2018 [Opening the black-box: Towards more Interactive and Interpretable Machine Learning](#)
Fabian C. Peña, **John Alexis Guerra-Gomez**
MLUI 2018: Machine Learning from User Interactions for Visualization and Analytics
Workshop

2019 [Understanding world happiness: An information visualization application case of the World Happiness Report](#)
Nychol Bazurto-Gomez, Carlos F. Torres, Raul Gutierrez, Mario Chamorro, Claire Bulger, Tiberio Hernandez, **John Alexis Guerra-Gomez**
Communications in Computer and Information Science, Springer
Journal

2017 [Visual Tools for the Exploration of Growth Data in a cohort of Kangaroo Infants during their first year of life](#)
Deisy J. Díaz, Julieta Villegas, **John Alexis Guerra-Gomez**, Nathalie Charpak, José Tiberio Hernádez
Proceedings of the 2017 Workshop on Visual Analytics in Healthcare (VAHC 2017)
Workshop

2017 [Good practices learned from designing a more interactive project based visual analytics course](#)
John Alexis Guerra-Gomez, Peter Salz, Shah Rukh Humayoun, Diana Fernandez, Klaus Madlener, Hans Hagen, José T. Hernandez
In Proceedings of 6th International Research Symposium on Problem Based Learning, Bogotá, Colombia
Conference

2017 [CWI-ADE2016 Dataset: Sensing nightclubs through 40 million BLE packets](#)
Sergio Cabrero, Jack Jansen, Thomas Roggla, **John Alexis Guerra-Gomez**, David A. Shamma, and Pablo Cesar
in Proceedings of the ACM Multimedia Systems Conference (ACM MMsys 2017), Taiwan
Conference

2015 [Methods and systems for determining query date ranges](#)
Frank Richard Bentley, Joseph Nathaniel Kaye, David Ayman Shamma, **John Alexis Guerra-Gomez**
US Patent Application, US20170024388A1
Patent

Tree Visualization (9)

2015 [Discovering temporal changes in hierarchical transportation data: Visual analytics & text reporting tools](#)
John Alexis Guerra-Gomez, Michael L. Pack, Catherine Plaisant, Ben Shneiderman
Transportation Research Part C: Emerging Technologies, Volume 51, February 2015, Pages 167-179
Journal

2013 [Visualizing Change over Time Using Dynamic Hierarchies: TreeVersity2 and the StemView](#)
John Alexis Guerra-Gomez, Michael L. Pack, Catherine Plaisant, Ben Shneiderman, B
IEEE transactions on visualization and computer graphics, 19(12), 2566–75
Conference

2013 [Exploring differences in multivariate datasets using hierarchies, An interactive information visualization Approach](#)
John Alexis Guerra-Gomez
Computer Science Deparment. University Maryland at College Park
PhD Thesis

2013 [TreeVersity: Interactive Visualizations for Comparing Hierarchical Datasets](#)
John Alexis Guerra-Gomez, Audra Buck-Coleman, Catherine Plaisant, Ben Shneiderman
In Proceedings of the Transportation Research Board 92th annual meeting, The National Academies, Washington, DC (2013)
Conference

2012 [TreeVersity: Visualizing Hierarchical Data for Value with Topology Changes](#)
John Alexis Guerra-Gomez, Audra Buck-Coleman, Catherine Plaisant, Ben Shneiderman
Design Research Society Conference Bangkok 2012
Conference

2011 [TreeVersity: Comparing tree structures by topology and node's attributes differences](#)
John Alexis Guerra-Gomez, Audra Buck-Coleman, Catherine Plaisant, Ben Shneiderman
In VAST 2011 - IEEE Conference on Visual Analytics Science and Technology 2011, Proceedings (pp. 275–276). IEEE
Conference

2011 [TreeVersity: Comparing Tree Structures by Topology and Node's Attributes Differences](#)
John Alexis Guerra-Gomez
Doctoral Colloquium, IEEE VisWeek 2011
Doctoral Colloquium

2011 [Visualization temporal events in traffic incidents](#)
John Alexis Guerra-Gomez
Guest presenter at the 6th International Symposium on Visualization in Transportation
Symposium

2011 [TreeVersity: Comparing Tree Structures by Topology and Node Attribute Values](#)
John Alexis Guerra-Gomez, Catherine Plaisant, Ben Shneiderman
HCIL Symposium 2011
Symposium

Photo Visualization (3)

2016 [Identifying Best Practices for Visualizing Photo Statistics and Galleries using Treemaps](#)
John Alexis Guerra-Gomez, Cati Boulanger, Sanjay Kairam, David A. Shamma
In Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI '16), Paolo Buono, Rosa Lanzilotti, and Maristella Matera (Eds.). ACM, New York, NY, USA, 60-63
Conference

2016 [The 32 Days Of Christmas: Understanding Temporal Intent in Image Search Queries](#)
Frank Bentley, Joseph 'Jofish' Kaye, David A. Shamma, John Alexis Guerra-Gomez
In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 5710-5714
Conference

2016 [Snap Decisions? How Users, Content, and Aesthetics Interact to Shape Photo Sharing Behaviors](#)
Sanjay Kairam, Jofish Kaye, John Alexis Guerra-Gomez, David Ayman Shamma
In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 113-124
Conference

Other (4)

2019 [Continuous Delivery of Software on IoT Devices](#)
Diego Prens, Iván Alfonso, Kelly Garcés, John Alexis Guerra-Gomez
MODELS 2019
Poster

2007 [Ear un software de entrenamiento auditivo musical (Ear a musical auditive training software)](#)
David Hernandez Niño, Tulio Echeverry Silva, John Alexis Guerra-Gomez
Scientia et Technica Magazine. Universidad Tecnológica de Pereira. Year XV, Edition 41.
Magazine

2006 [Modelo de solución de enrutamiento de datos a bajo costo basado en software libre (Low cost routing solution model based on free software)](#)
Myriam Marin Ospina, Ruth Andrea Martín Bedoya, John Alexis Guerra-Gomez
Scientia et Technica Magazine. Universidad Tecnológica de Pereira. Year XII, Edition 32.
Magazine

2004 [El gusano genético (The genetic snake)](#)
John Alexis Guerra-Gomez, María Fernanda Zúñiga Zabala, Felipe Restrepo Calle
Congreso de Seguridad en Cómputo e Inteligencia Artificial 2004(Computing security and AI workshop). Universidad Tecnológica de Pereira
Conference

Time Visualization (2)

2011 [LifeFlow: Visualizing an Overview of Event Sequences](#)
Krist Wongsuphasawat, John Alexis Guerra-Gomez, Catherine Plaisant, Taowei David Wang, Meirav Taieb Maimon and Ben Shneiderman
In Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (CHI'11), 1747-1756
Conference

2011 [Analyzing Incident Management Event Sequences with Interactive Visualization](#)
John Alexis Guerra-Gomez, Krist Wongsuphasawat, Taowei David Wang, Michael Pack and Catherine Plaisant
In Proceedings of the Transportation Research Board 90th annual meeting, The National Academies, Washington, DC
Conference

Network Visualization (4)

2016 [Lessons learned from designing and implementing Network Explorer, a real world network visual analytics tool using open source software](#)
John Alexis Guerra-Gomez
IEEE Vis 2016, Workshop on Visualization in Practice: Open Source Visualization and Visual Analytics Software (VIP)
Workshop

2016 [Design, Implementation, and Real World Deployment of the Network Explorer, a Large Network Visual Analytics Tool](#)
John Alexis Guerra-Gomez, Aaron Wilson, Juan Liu, Dan Davies, Peter Jarvis and Eric Bier
In Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI '16), Paolo Buono, Rosa Lanzilotti, and Maristella Matera (Eds.). ACM, New York, NY, USA, 108-111
Conference

2016 [Graph analysis for detecting fraud, waste, and abuse in healthcare data](#)
Juan Liu, Eric Bier, Aaron Wilson, Tomo Honda, Sricharan Kumar, Leilani Gilpin, John Alexis Guerra-Gomez, and Daniel Davies
AI Magazine, 37(2), 33-47
Journal

2015 [Graph analysis for detecting fraud, waste, and abuse in healthcare data](#)
Juan Liu, Eric Bier, Aaron Wilson, Tomo Honda, Sricharan Kumar, Leilani Gilpin, John Alexis Guerra-Gomez, and Daniel Davies
In Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI'15). AAAI Press 3912-3919
Conference

Accessibility (6)

2019 [Tactiled: Towards More and Better Tactile Graphics Using Machine Learning](#)
Ricardo Gonzalez, Carlos Gonzalez, John Alexis Guerra-Gomez
ASSETS 2019
Poster

2017 [BTactile: the place to find tactile graphics and to learn how to create them](#)
John Alexis Guerra-Gomez, María Fernanda Zúñiga Zabala
Presented at the 32nd CSUN Assistive Technology Conference, San Diego
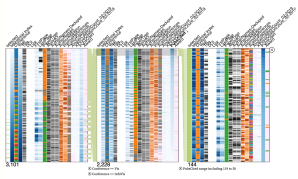Conference

2005 Colombian Patent No. 05-037765 "Sistema para la percepción de imágenes por medio del tacto por medio de un guante de imanes" (System for the perception of images by means of touch using a glove of magnets). Resolution 18963 of April 5 2011
María Fernanda Zúñiga Zabala, John Alexis Guerra Gómez and Felipe Restrepo Calle
In process with the WIPO (World Intellectual Property Organization) since June 2006
Patent

2006 International patent registration PCT/IB2006/001502 System for the perception of images with touch
Maria Fernanda Zuniga Zabala, John Alexis Guerra-Gomez, Felipe Restrepo Calle, Jose Alfredo Jaramillo Villegas
In process with the WIPO (World Intellectual Property Organization) since June 2006
Patent

2007 [System for the perception of images through touch](#)
Maria Fernanda Zuniga Zabala, John Alexis Guerra-Gomez, Felipe Restrepo Calle, Jose Alfredo Jaramillo Villegas
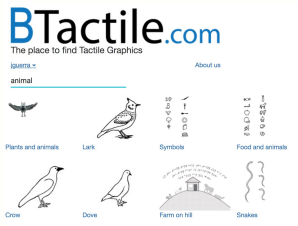USA Patent application number 20080174566
Patent

2005 [Proyecto IRIS](#)
Maria Fernanda Zúñiga Zabala, Felipe Restrepo Calle, John Alexis Guerra-Gomez
Scientia et Technica Magazine. Universidad Tecnológica de Pereira. Year XI, Edition 28.
Magazine

Things I have built

Navio

A visualization widget that you can use to explore large data

BTactile

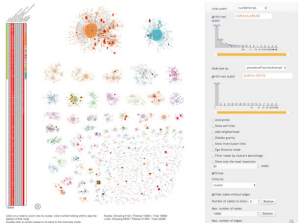A search engine for tactile images for the blind.

Tweetometro
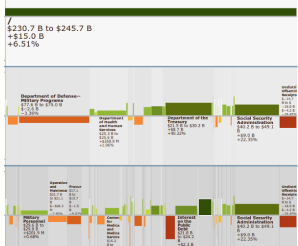
Twitter monitor and analyzer for different topics

Phototreemap

Representing groups of photos with numeric attributes. Work in progress, pending publication.
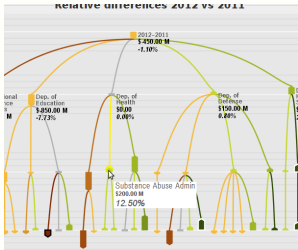
Network Explorer

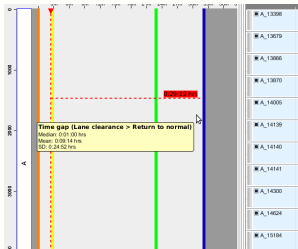Visual analytics tool for understanding large networks. Pending publication.

TreeVersity v2

Visualizing five dimensions of change in a dataset changing over time using hierarchies

TreeVersity v1

Comparing changes between trees on structure and node values.

LifeFlow

A visual analytics tool for temporal categorical data. Helped developing the comparison modules as part of a broader project.

IRIS

A system to allow blind children to see colors and shapes with their hands

Much more!

Here is a sample of everything I've been building and doing