

Vanessa Peña-Araya

Curriculum Vitae

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Date of birth: February 27th, 1988

I am Chilean researcher in Information Visualization and Human-Computer Interaction at **Inria**, Saclay, France. I am a member of the **ILDA** team, which is part of the **Laboratoire Interdisciplinaire des Sciences du Numérique, LISN** (Université Paris-Saclay, CNRS & Inria, a lab created by teams from the LIMSI and the LRI).

Research Experience

- Since Oct 2021 **Inria Starting Faculty Position (ISFP)**, *Inria Saclay*, Université Paris-Saclay, France
I am a researcher at Inria and I teach the Université Paris-Saclay.
- Dec 2018 to Sept 2021 **Postdoc**, *ILDA team, Inria Saclay*, Université Paris-Saclay, France
My first two research projects were about understanding the effectiveness of different geo-temporal visualizations strategies for, on one hand, analyzing correlation between two variables and, on the other, propagation dynamics over space and time. At the current moment, I am working on a visualization for the exploration of relationships among named entities. This work is motivated by a collaboration with investigative journalists.
- Jan to Oct 2018 **Research and Development Engineer**, *Inria Chile*, I participated in a data analysis project, in an application for government funding for a research-development project in collaboration with a local company and a project in collaboration with a local university. I also gave a couple of talks and seminars
- Sept to Dec 2015 **Student internship**, *Human Centered Data Science, HCDE*, University of Washington, Seattle, United States, Participated in a research project to improve and study a visual interface to help users to qualitative coding
- Dec 2010 to Jan 2011 **Student internship**, *Loria - INRIA Nancy Grand Est, Cortex Team*, Vandoeuvre-lès-Nancy, France, Research and analysis of facial animation algorithms based on interpolation techniques using MPEG-4 standard and Candide-3

Education

- 2013-2018 **Computer Science PhD**, *Computer Science Department*, University of Chile, Santiago, Chile
- 2006-2012 **Computer Science Engineer**, *Computer Science Department*, University of Chile, Santiago, Chile

Publications

- 2022 **Golina Hulstein, Vanessa Peña-Araya, Anastasia Bezerianos.**, *Geo-Storylines: Integrating Maps into Storyline Visualizations.*, Proceedings IEEE Transactions on Visualization and Computer Graphics, 2022
- 2021 **Vanessa Peña-Araya, Tong Xue, Emmanuel Pietriga, Laurent Amsaleg, Anastasia Bezerianos**, *HyperStorylines: Interactively Untangling Dynamic Hypergraphs*, Information Visualization
- 2020 **Vanessa Peña-Araya, Anastasia Bezerianos, Emmanuel Pietriga**, *A Comparison of Geographical Propagation Visualizations*, In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)
- Eduardo Graells-Garrido, Vanessa Peña-Araya, Loreto Bravo**, *Adoption-Driven Data Science for Transportation Planning: Methodology, Case Study, and Lessons Learned*, Sustainability 2020
- Eduardo Graells-Garrido, Vanessa Peña-Araya**, *Toward An Interdisciplinary Methodology to Solve New (Old) Transportation Problems*, In Companion Proceedings of the Web Conference 2020 (WWW '20). Association for Computing Machinery.

- 2019 **Vanessa Peña-Araya, Emmanuel Pietriga, Anastasia Bezerianos**, *A Comparison of Visualizations for Identifying Correlation over Space and Time*, Proceedings IEEE Transactions on Visualization and Computer Graphics, 2019
- 2018 **Francisco J. Gutierrez, Jocelyn Simmonds, Nancy Hitschfeld, Cecilia Casanova, Cecilia-Sotomayor, Vanessa Peña-Araya**, *Assessing Software Development Skills Among K-6 Learners in a Project-Based Workshop with Scratch*, ICSE SEET - Software Engineering Education and Training
- 2017 **Vanessa Peña-Araya, Mauricio Quezada, Barbara Poblete and Denis Parra**, *Gaining Historical and International Relations Insight from Social Media: A Spatio-Temporal Context-Aware Model for News Events in Twitter*
Nan-Chen Chen, Rafal Kocielnik, Margaret Drouhard, Vanessa Peña-Araya, Jina Suh, Keting Cen, Xiangyi Zheng and Cecilia R. Aragon, *Aeonium: Visual Analytics to Support Collaborative Qualitative Coding*, Proceedings of the IEEE Pacific Visualization Symposium (PacificVis 2017)
- 2016 **Nan-Chen Chen, Rafal Kocielnik, Margaret Drouhard, Vanessa Peña-Araya, Jina Suh, Keting Cen, Xiangyi Zheng and Cecilia R. Aragon**, *Challenges of Applying Machine Learning to Qualitative Coding*, CHI 2016 workshop on Human Centered Machine Learning (HCML 2016)
- 2015 **Mauricio Quezada, Vanessa Peña-Araya and Barbara Poblete**, *Location-Aware Model for News Events in Social Media*, SIGIR 2015, pages 935-938
Vanessa Peña-Araya, Mauricio Quezada and Barbara Poblete, *Galean: Visualization of Geolocated News Events from Social Media*, SIGIR 2015, pages 1041-1042
Jazmine Maldonado, Vanessa Peña-Araya and Barbara Poblete, *Spatio and Temporal Characterization of Chilean News Events in Social Media*, . SIGIR 2015 Workshop on Temporal, Social and Spatially-aware Information Access (TAIA'15), August 13, 2015, Santiago, Chile
- 2014 **Alexandre Bergel, Vanessa Peña Araya**, *Increasing Test Coverage with Hapao*, Sci. Comput. Program. 79: 86-100
- 2012 **Alexandre Bergel, Vanessa Peña, Juan Pablo Sandoval**, *The Hidden Face of Execution Sampling*, Proceedings of the 1st Smalltalk Direction Workshop – Collocated with STIC'12
- 2011 **Vanessa Peña Araya**, *Test Coverage With Hapao*, Proceedings of the 5th Workshop on Dynamic Languages and Applications – Collocated with TOOLS 2011
Vanessa Peña Araya, *Test Blueprint: An Effective Visual Support for Test Coverage*, Proceedings of the International Conference on Software Engineering (ICSE), 2011, ACM Press. Student Research Competition track, pages 1140-1142

Outreach

- 2020 **Vanessa Peña-Araya**, *A Comparison of Geographical Propagation Visualizations*, Multiples Views: Visualization Research Explained
<https://medium.com/multiple-views-visualization-research-explained/a-comparison-of-geographical-propagation-visualizations-2f280634b99e>
- 2019 **Jérémy Barbay, Vanessa Peña-Araya**, *El Académico Digital*, Revista Bits de Ciencia, DCC, Universidad de Chile, pages 38-43
<https://www.dcc.uchile.cl/Bitsdeciencia18.pdf>
- 2015 **Nancy Hitschfeld, Francisco Gutiérrez, Vanessa Peña-Araya and Jorge Romo**, *Desarrollando el Pensamiento Computacional: Acercando la Computación a Niñas y Niños de Chile*, Revista Bits de Ciencia, DCC, Universidad de Chile, pages 34-39
<https://www.dcc.uchile.cl/Bitsdeciencia12.pdf>
Vanessa Peña Araya, *Modelamiento y Visualización del Contexto Geotemporal de Eventos Extraídos de Redes Sociales en Línea*, Revista Bits de Ciencia, DCC, Universidad de Chile, pages 64-68
<https://www.dcc.uchile.cl/Bitsdeciencia12.pdf>

Teaching experience

- 2022-2023, **Professor - Winter School**, Université Paris-Saclay, Saclay, France
- 2021-2022 Class for M1 students where they develop the skills to read, criticize and summarize research publications. Done in collaboration with **Anastasia Bezerianos** and **Ouriel Grynszpan**. Initially taught by **Wendy Mackay**.

- 2022-2023 **Professor - Career Seminar**, *Université Paris-Saclay*, Saclay, France
Class for M2 students where they are introduced a career in HCI or DS, either in research, in industry or as an entrepreneur. Initially taught by [Anastasia Bezerianos](#).
- 2022-2023, 2021-2022 **Professor - Development of Web Applications**, *Université Paris-Saclay*, Saclay, France
Class for M1 and M2 students where we cover the basics of web development with node.js. Done in collaboration with [Frédéric Vernier](#).
- 2020, 2018, 2016 **Invited Professor - Hospital Information Systems II**, *Faculty of Medicine, University of Chile*, Santiago
Ideation, design and implementation of a introductory class about Data Mining of 3hrs that includes a theoretical part where some the concepts about data analysis. It includes a practical part where the students have to do some data analysis and visualization. Initially this part was implemented with R, but since 2020 it is implemented with Python, Scikit Learn and Jupyter Notebooks. This course is part of the Master's Degree in Medical Informatics of the Faculty of Medicine.
- 2021-2022 **Teaching Assistant - Développement d'Applications avec IHM (undergraduate level)**, *IUT D'Orsay*, France
- 2021, 2019 **Teaching Assistant - INF552: Data Visualization**, *École Polytechnique*, Paris, France
Teaching assistant, in charge of resolving doubts of the student in the practical part of the lecture. This is a aster level course that gives an overview of the field of data visualization.
- 2017, 2016 **Teaching Assistant - CC5208: Information Visualization**, *University of Chile*, Santiago
Elective course for undergraduate or graduate students where the basics of Information Visualization are taught. Responsibilities: practical class, co-design activities with the professor, grading assignments and controls.
- 2017, 2016 **Teaching Assistant - CC3001: Algorithms and Data Structures**, *University of Chile*, Santiago
Mandatory course for 3rd year Computer Science Engineering students. It covers the basis of algorithms designs and data structures. Responsibilities: practical sessions in collaboration with two other assistants.
- 2014 **Teaching Assistant, CC1000 - Computational Tools for Engineering and Science**, *University of Chile*, Santiago
Mandatory course of first year of Engineering School where students learn about basic Web tools, in addition to Matlab and Maple. Responsibilities: laboratory assistant, answering students' questions and grading assignments.
- 2013 **Teaching Assistant, CC1001 - Introduction to Computer Science**, *University of Chile*, Santiago
Mandatory course for students of First year of Engineering School whose objective is to develop algorithmic and logical reasoning as fundamental and basic dimensions of general problem-solving ability in the field of engineering, physical and mathematical sciences. Responsibilities: practical sessions in collaboration with two more teaching assistants.
- 2011, 2010 **Teaching Assistant, CC3002 - Design and Programming Methodologies**, *University of Chile*, Santiago
Mandatory course for 3rd year Computer Engineering students covering good programming practices and design patterns. Responsibilities: practical class (2011) and grading assignments and exams (2010)
- 2010 **Teaching Assistant, EI2001 - Project workshop**, *University of Chile*, Santiago
Mandatory course for second year students classified in different subjects. I worked helping students to build robots with LEGO Mindstorms and LeJOS.

Extracurricular Activities

- July 2016 to January 2019 **Co-founder of Niñas Pro(gramadoras)** <http://ninasprogramadoras.cl/>, *University of Chile*, Santiago
NiñasPro(gramadoras) is an initiative that aims to reduce the gender gap in STEAM (Science, Technology, Engineering, Arts and Mathematics). Our main activity are ongoing programming workshops where high school girls can train to compete in the Chilean Olympiad in Informatics (<http://www.olimpiada-informatica.cl/>), an instance that can lead them to later compete at the International Olympiad in Informatics (<https://ioinformatics.org/>). We do other activities like talks at school and participate in Science festivals oriented to decrease the gender gap in Computer Science. Although I'm still part of the foundation I no longer participate in their activities since I moved to France
- 2013 - 2014 **Developing Computational Thinking (Scratch)**, *University of Chile, FCFM*, Santiago, Short workshops for developing computational thinking on kids by using Scratch. It was focused on girls and boys of 9 to 12 years old. I was a teacher in the workshops and I helped preparing the material
- 2012-2014 **Object Profile**, I was cofounder of Object Profile (<http://objectprofile.com/>) and was involved in the development of Kai, Hapao, Loom and Roassal, four Smalltalk-based products. I'm no longer part of the company

Awards

- 2016 **El Mercurio**, *Santiago, Chile*, Selected as one of Chile's "100 Jóvenes Líderes" (100 Young leaders under 35) by El Mercurio (Dec. 2016), <http://www.redlideres.cl/lider/vanessa-pena-araya/>
- 2012 **Best Graduated Student**, *Computer Science Department, University of Chile*, Santiago, Chile
- 2012 **ACM**, *San Francisco, USA*, Awarded the second place in ACM Student Research Competition Grand Finals, undergraduate category, <https://src.acm.org/winners/2012>
- 2011 **ICSE 2011**, *Honolulu, Hawaii, USA*, Awarded the second place in ACM Student Research Competition, undergraduate category, <http://src.acm.org/winners.html>
- 2011 **CursorLab**, *Santiago, Chile*, Second place in Android competition organized by Cursorlab, <http://www.dcc.uchile.cl/node/459>
- 2009-2011 **Outstanding Undergraduate Student Award**, *Computer Science Department, University of Chile*, Santiago, Chile, <http://escuela.ing.uchile.cl/la-escuela/alumnos-destacados/>

Languages

- Spanish **Native**
- English **Fluent**, Good understanding in written and spoken English. Correct writing and speaking
- French **Basic**, Understanding of daily small conversations and writing