Paola **Valdivia**

Research engineer
Télécom Paris

Overview

I am a researcher in the field of visual analytics, a practice that brings together data analysis, information visualization, HCI methods, and software development. My research focuses on network visual analysis, leveraging mathematical network models, and information visualization to create new analysis methods for large datasets, where the interconnection of their pieces can lead to significant insights. These projects led to several internationally peer-reviewed publications at IEEE VIS, Eurovis, and TVCG.

Professional experience

- **Research Engineer** — France
  Télécom Paris — Jun 2020 - *present*
- **Postdoctoral Researcher** — France
  Inria Saclay — Jun 2018 - May 2020
- **Research Consultant** — Brazil
  Visibilia — Dec 2018 - Jul 2019
- **Research internship** — France
  Inria Saclay — Aug 2016 - Jul 2017
- **Research internship** — USA
  New York University — Nov 2015
- **Software Developer** — Peru
  Peru Credit Bank (BCP) — Aug 2010 - Jul 2011

Education

- **University of São Paulo** — Brazil
  Ph.D. Computer Science — *Dec 2013 - May 2018*
- **University of São Paulo** — Brazil
  M.Sc. Computer Science — *Aug 2011 - Nov 2013*
- **San Pablo Catholic University** — Peru
  B.S. Informatics Engineering (Computer Science) — *2005 - 2010*

Expertise

visual analytics
network visualization
data science
graph signal processing

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Foreign Languages

english	*fluent*
french	*professional*
spanish	*native*
portuguese	*fluent*

References

Dr. Jean Daniel Fekete
AVIZ Team Leader
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Dr. Luis Gustavo Nonato
Full Professor
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Dr. Catherine Plaisant
Senior Research Scientist
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Publications

- Pister, A., Buono, P., Fekete, J. D., Plaisant, C., and **Valdivia, P.** (2020). *Analyzing Dynamic Hypergraphs with Parallel Aggregated Ordered Hypergraph Visualization*. to appear in IEEE Transactions on Visualization and Computer Graphics.
- **Valdivia, P.**, Buono, P., Plaisant C., Dufournaud N. and Fekete, J.-D. (2020). *Integrating Prior Knowledge in Mixed Initiative Social Network Clustering*. To appear in IEEE Transactions on Visualization and Computer Graphics.
- Ferreira, V., Valejo, A., **Valdivia, P.** and Valverde-Rebaza, J. (2019) *Exploiting Geographical Data to improve Recommender Systems for Business Opportunities in Urban Areas*. To appear in Proceedings of BRACIS 2019.
- Dias, M.D, **Valdivia, P.**, Petronetto, F., Nonato, L. G. (2018). *Graph Spectral Filtering for Network Simplification* . In Graphics, Patterns and Images (SIBGRAPI), 2018 31st SIBGRAPI-Conference. IEEE.
- Col, A. D., **Valdivia, P.**, Petronetto, F., Dias, F., Silva, C. T., and Nonato, L. G. (2017). *Wavelet-based visual analysis of dynamic networks*. IEEE Transactions on Visualization and Computer Graphics.
- Col, A. D., **Valdivia, P.**, Petronetto, F., Dias, F., Silva, C. T., and Nonato, L. G. (2017). *Wavelet-based visual analysis for data exploration*. Computing in Science Engineering.
- Dias, F., Mansour, M. R., **Valdivia, P.**, Cousty, J., and Najman, L. (2017). *Watersheds on Hypergraphs for Data Clustering*. In International Symposium on Mathematical Morphology and Its Applications to Signal and Image Processing. Springer, Cham.
- **Valdivia, P.**, Dias, F., Petronetto, F., Silva, C. T., and Nonato, L. G. (2015). *Wavelet-based visualization of time-varying data on graphs*. In Visual Analytics Science and Technology (VAST), 2015 IEEE Conference.
- Søren Knudsen, Jan Aerts, Daniel Archambault, Remco Chang, Jean-Daniel Fekete, **Valdivia, P.** et al. (2019) *Unifying the framework of Multi-Layer Network and Visual Analytics. Visual Analytics of Multilayer Networks Across Disciplines*, Dagstuhl Reports.
- **Valdivia, P.**, Cedrim, D., Petronetto, F., Paiva, A., and Nonato, L. G. (2013). *Normal Correction towards Smoothing Point-Based Surfaces*. In Graphics, Patterns and Images (SIBGRAPI), 2013 26th SIBGRAPI-Conference. IEEE.

Short papers

- **Valdivia, P.**, Buono, P., Plaisant C., Dufournaud N. and Fekete, J.-D. (2018). *Using Dynamic Hypergraphs to Reveal the Evolution of the Business Network of a 17th Century French Woman Merchant*. VIS 2018-3rd Workshop on Visualization for the Digital Humanities.

Posters

- **Valdivia, P.**, Buono, P., and Fekete, J.-D. (2017). *Hypenet: Visualizing Dynamic Hypergraphs*. In Puig, A. P. and Isenberg, T., editors, EuroVis 2017 - Posters. The Eurographics Association.
- Dimara, E., **Valdivia, P.**, and Kinkeldey, C. (2017). *DcPAIRS: A Pairs Plot Based Decision Support System*. In Puig, A. P. and Isenberg, T., editors, EuroVis 2017 - Posters. The Eurographics Association.

Software prototypes and contributions

- **PK-clustering**. Prototype for creating meaningful clusters in social networks.
  Implemented in Dart using web canvas and a Flask server. http://paovis.ddns.net/paoh.html
- **Paohvis**. Prototype for visualizing dynamic multi-entity relationships.
  Implemented in Dart using web canvas. http://www.aviz.fr/paohvis/
- **Waviz**. Prototype for analyzing spatio-temporal data based on graph signal porcessing.
  Implemented in JavaScript using D3. https://paolavaldivia.github.io/waviz/
- **Siion**. Prototype for showing the best potential regions for opening a business in the city of São Paulo.
  Implemented in Javascript using React and Mapbox http://siion.visibilia.net.br
- **Dynamic Network Explorer**. Prototype for analyzing dynamic networks based on graph signal porcessing.
  Implemented in JavaScript using the framework AngularJS and D3. https://paolavaldivia.github.io/dynnet_wavelet/
- **Networkcube**. Reimplemented the matrix visualization for exploring networks. Implemented in Typescript using WebGL and D3. http://networkcube.net/