

## Denis Parra

Associate Professor, Department of Computer Science, Pontificia Universidad Católica de Chile.

Office Phone: +56 (2) 2354-4442

E-mail: dparra@ing.puc.cl

Web page: <http://dparra.sitios.ing.uc.cl/>

Research Group: Head of the Human-Centered AI and Visualization group (HAIVis) <https://haivis.ing.puc.cl>

Faculty Member of the Artificial Intelligence Lab (IALab) <https://ialab.ing.puc.cl/>

---

### Interests

Recommender Systems, Machine Learning, HCI and Information Visualization.

### Education

2008-2013      **University of Pittsburgh**, Pittsburgh, PA, USA  
PhD in Information Science. Adviser: Professor Peter Brusilovsky

### Academic Awards and Honors

2019      **Candidate best paper honorable mention**, IUI 2019 conference, Los Angeles, CA, USA.  
2018      **Candidate best paper honorable mention**, IUI 2018 conference, Tokyo, Japan.  
2017      **Outstanding reviewer award**, WWW 2017 conference, Perth, Australia.  
2011      **Best student paper award**, User Modelling, Adaptation and Personalization (UMAP) 2011 conference. Girona, Spain.

### Projects

2021-2031      Principal Researcher in Millenium Institute iHealth, funded by ANID.  
2021-2031      Principal Researcher in National Center for Artificial Intelligence (**CENIA**), funded by ANID.  
2018-2028      Adjunct Researcher in Millenium Institute for Research on **Fundamentals of Data**.  
2019-2021      Leading Researcher in Fondecyt Project 1191791 “**Harnessing Information Visualization and Interactivity to Develop Interfaces for Explainable AI**”. CONICYT.  
2016-2018      Associate Researcher in Fondef IDeA Project ID16I10222 “**Observatorio Digital de Delincuencia en Chile: Un sistema inteligente de apoyo a la industria automotriz chilena**”. CONICYT.  
2016-2018      Leading Researcher in Fondecyt Initiation Project 11150783 “**Dealing with Information Overload Using Intelligent Recommender System Interfaces**”. CONICYT.  
2015-2016      Co-PI in project “**Visualization and Recommendation of Large Image and Text Collections toward Effective Sensemaking**”. Andrónico Luksic research grant for PUC Chile-Notre Dame collaboration. PI: Prof. Chaoli Wang, University of Notre Dame.  
2014-2017      Researcher in project “**Nucleo milenio research center for entrepreneurial strategy under uncertainty (NS130028)**”, PI: Prof. Stephen Zhang, PUC Chile.

### Students Supervised

PhD      [Graduated 2019] José Miguel Herrera, thesis title “Learning to Rank Social Knowledge for Question Answering in Streaming Platforms”.

         [PhD Candidate] Andrés Carvallo, working on thesis “Active Learning for Evidence-Based Medicine”.

         [PhD Candidate] Manuela Garretón “The Impact of Information Visualization in Public Policy”

[PhD Candidate] Pablo Messina “Text report generation from X-Rays via VQA modelling”

[PhD student] Ivania Donoso (2021 - )

[PhD student] Tamara Quiroga (2022 - )

- Master
- [Graduated 2017] Ivania Donoso-Guzmán, thesis: “Design and Evaluation of an Intelligent User Interface in Evidence Based Health Care”. Two full papers at ACM IUI Conference, both nominated to best paper.
- [Graduated 2019] Pablo Messina, thesis: “Algorithms for Visual Art Recommendation: Leveraging Visual Features, Metadata and Implicit Feedback”. Master thesis published in UMUAI Journal.
- [Graduated 2019] Vicente Domínguez, thesis: “Studying the Effects of Explaining Recommendations of Artistic Images”. Thesis research published as full paper at ACM IUI Conference (nominated to best paper), 3 workshop publications at ACM RecSys conference.
- [Graduated 2019] María Fernanda Sepúlveda, thesis: “Herramientas de Analítica Visual para Modelos de Tópicos Sobre Colecciones de Documentos”.
- [Graduated 2019] Jorge Schellman, thesis: “Evaluación de Diversas Metodologías para Recomendación de Libros”.
- [Graduated 2019] Lukas Svicarovic, thesis: “Evaluación de Técnicas de Interacción para Comparación de Mapas de Densidad Multiclase”.
- [Graduated 2021] Tamara Covacevich, thesis: “Exploring Representations Of Icd Codes For Patient Readmission Prediction”.
- [Graduated 2021] Manuel Cartagena, thesis: “Exploring Symbolic Music Generation Techniques Using Conditional Generative Adversarial Networks”.
- [Graduated 2021] Hernán Valdivieso, thesis: “Desarrollo y Evaluación de un Modelo De Diseño de Visualizaciones para Inteligencia Artificial Explicable”.

### **Journal Publications**

- 2021
- [ISI] Diego Rojo, Nyi-Nyi Htun, Denis Parra, Robin De Croon, Katrien Verbert. *AHMoSe: A knowledge-based visual support system for selecting regression machine learning models*. Computers and Electronics in Agriculture 187, 106183
- [ISI] Rodrigo Cádiz, Agustín Macaya, Manuel Cartagena, Denis Parra. *Creativity in Generative Musical Networks: Evidence From Two Case Studies*. Frontiers in Robotics and AI, 229
- 2020
- [ISI] Vicente Domínguez, Ivania Nadine Donoso-Guzmán, Pablo Messina, and Denis Parra. *Algorithmic and HCI aspects for explaining recommendations of artistic images*. ACM Transactions on Interactive Intelligent Systems 0, [https://doi.org/10.1145/3369396]
- [ISI] José Herrera, Denis Parra, Barbara Poblete. *Social QA in non-CQA platforms*. Future Generation Computer Systems [https://doi.org/10.1016/j.future.2019.12.023]
- 2019
- [ISI] José Méndez, Hans Lobel, Denis Parra, Juan Carlos Herrera. *Using Twitter to Infer User Satisfaction with Public Transport: the case of Santiago, Chile*. IEEE Access, [https://doi.org/10.1109/ACCESS.2019.2915107]
- [ISI] Yi-ling Lin, Denis Parra, Christoph Trattner, Peter Brusilovsky. *Tag-based information access in image collections: insights from log and eye-gaze analyses*. Knowledge and Information Systems, 1–28, [http://doi.org/10.1007/s10115-019-01343-4].

- 2018 [ISI] Pablo Messina, Vicente Dominguez, Denis Parra, Christoph Trattner, and Alvaro Soto. **Content-based artwork recommendation: integrating painting metadata with neural and manually-engineered visual features**. User Modeling and User-Adapted Interaction, [https://doi.org/10.1007/s11257-018-9206-9]
- [ISI] Wai Lam Jonathan Lee, Denis Parra, Jorge Munoz-Gama, Marcos Sepúlveda. **Predicting Process Behavior Meets Factorization Machines**. Expert Systems with Applications, [https://doi.org/10.1016/j.eswa.2018.05.035].
- [ISI] Ivana Andjelkovic, Denis Parra, John O'Donovan. **Moodplay: Interactive music recommendation based on Artists' mood similarity**. International Journal of Human-Computer Studies. [https://doi.org/10.1016/j.ijhcs.2018.04.004]
- [ISI] Bruno Cardoso, Gayane Sedrakyan, Francisco Gutiérrez, Denis Parra, Peter Brusilovsky, Katrien Verbert. **IntersectionExplorer, a multi-perspective approach for exploring recommendations**. International Journal of Human-Computer Studies [https://doi.org/10.1016/j.ijhcs.2018.04.008].
- Christoph Trattner, Alexander Oberegger, Leandro Balbi-Marinho, Denis Parra. **Investigating the utility of the weather context for point of interest recommendations**. Journal on Information Technology & Tourism. [https://doi.org/10.1007/s40558-017-0100-9]
- 2017 [ISI] Vanessa Peña-Araya, Mauricio Quezada, Bárbara Poblete, Denis Parra. **Gaining historical and international relations insights from social media: spatio-temporal real-world news analysis using Twitter**. EPJ Data Science [https://doi.org/10.1140/epjds/s13688-017-0122-8]
- [ISI] Christoph Trattner, Denis Parra, David Elswiler, **Monitoring obesity prevalence in the United States through bookmarking activities in online food portals**, PloS One, [https://doi.org/10.1371/journal.pone.0179144]
- 2016 [ISI] Katrien Verbert, Denis Parra, Peter Brusilovsky, **Agents vs. Users: Visual Recommendation of Research Talks with Multiple Dimensions of Relevance**, ACM Transactions on Interactive Intelligent Systems, ACM, [https://doi.org/10.1145/2946794]
- [ISI] Chen He, Denis Parra, Katrien Verbert, **Interactive recommender systems: a survey of the state of the art and future research challenges and opportunities**, Expert Systems with Applications, Elsevier [http://dx.doi.org/10.1016/j.eswa.2016.02.013]
- [ISI] Peter Brusilovsky, Jung Sun Oh, Claudia Lopez, Denis Parra, Wei Jeng. **Linking Information and People in a Social System for Academic Conferences**. New Review of Hypertext and Hypermedia, Taylor and Francis [http://dx.doi.org/10.1080/13614568.2016.1179796]
- [ISI] Mar Pérez-Sanagustin, Denis Parra, Renato Verdugo, Gonzalo García-Galleguillos, Miguel Nussbaum, **Using QR codes to increase user engagement in museum-like spaces**, Computers in Human Behavior, Elsevier [http://dx.doi.org/10.1016/j.chb.2016.02.012]
- [ISI] Yi Gu, Chaoli Wang, Jun Ma, Robert J Nemirow, David L Kao, Denis Parra, **Visualization and recommendation of large image and text collections toward effective sensemaking**, Information Visualization, SAGE Publications [http://dx.doi.org/ 10.1177/1473871616630778]
- [ISI] Denis Parra, Christoph Trattner, Diego Gomez, Matias Hurtado, Xidao Wen, Yu-Ru Lin, **Twitter in academic events: A study of temporal usage, communication, sentimental and topical patterns in 16 Computer Science conferences**, Computer Communications [http://dx.doi.org/10.1016/j.comcom.2015.07.001]
- 2015 [ISI] Denis Parra, Peter Brusilovsky, **User-controllable personalization: A case study with SetFusion**, Int. J. Human-Computer Studies [http://dx.doi.org/10.1016/j.ijhcs.2015.01.007]
- 2011 Troussov, A., Darena, F., Žižka, J., Parra, D., Brusilovsky, P. **Vectorised Spreading Activation Algorithm for Centrality Measurement**. Acta Universitatis agriculturae et silviculturae Mendelianae Brunensis. 2011. sv. LIX, no. 7, s. 469--476. ISSN 1211-8516

## Book Chapters

- 2012 Denis Parra, Shaghayegh Sahebi. **Chapter 8, Recommender Systems: Sources of Knowledge and Evaluation Metrics**. Advanced Techniques in Web Intelligence, Volume 2, Springer-Verlag. Editors: Juan D. Velásquez, Vasile Palade and Lakhmi C. Jain.

## Selected Conference and Workshop Papers

- 2021 Lukas Svicarovic, Denis Parra, María J. Lobo. **Evaluating Interactive Comparison Techniques in a Multiclass Density Map for Visual Crime Analytics**. EuroVis 2021.
- Pablo Pino, Denis Parra, Cecilia Besa, Claudio Lagos. **Clinically Correct Report Generation from Chest X-Rays Using Templates**. International Workshop on Machine Learning in Medical Imaging (MLMI), co-located at MICCAI 2021.
- 2020 Agustin Macaya, Rodrigo Cadiz, Manuel Cartagena, Denis Parra. 2020. **Latent Chords: Generative Piano Chord Synthesis with Variational Autoencoders**. In Proceedings of the Workshop on Human-AI Co-Creation with Generative Models (HAI-GEN).
- 2019 Vicente Domínguez, Pablo Messina, Ivania Donoso-Guzmán, Denis Parra. 2019. **The Effect of Explanations and Algorithmic Accuracy on Visual Recommender Systems of Artistic Images**. In Proceedings of the 24th International Conference on Intelligent User Interfaces Companion. (Nominated to best paper award)
- 2018 Ivania Donoso-Guzmán, Denis Parra. 2018. **An Interactive Relevance Feedback Interface for Evidence-Based Health Care**. In Proceedings of the 23rd International Conference on Intelligent User Interfaces Companion. (Nominated to best paper award)
- José Miguel Herrera, Bárbara Poblete, Denis Parra. 2018. **Learning to Leverage Microblog Information for QA Retrieval**. In Proceedings of the European Conference on Information Retrieval.
- 2017 Katrien Verbert, Peter Brusilovsky, Chirayu Wongchokprasitti, Denis Parra, and Bruno Cardoso. 2017. **Supporting Conference Attendees with Visual Decision Making Interfaces**. In Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion.
- Manuel Garretón, Karina Hyland, Denis Parra. 2017. **Understanding People's Interaction with Neural Sci-Art**. Proceedings of the Visual Arts Program, IEEE Visualization Conference.
- 2016 Ivana Andjelkovic, Denis Parra, John O'Donovan. **Moodplay: Interactive Mood-based Music Discovery and Recommendation**. In proceedings of the Conference on User Modeling, Adaptation and Personalization 2016, Halifax, Canada.
- 2015 Alfredo Cobo, Denis Parra, Jaime Navón. **Identifying Relevant Messages in a Twitter-based Citizen Channel for Natural Disaster Situations**. In proceedings of the 3rd Workshop on Social Web for Disaster Management, co-located at the 24th International World Wide Web Conference 2015, Florence, Italy.
- 2014 Denis Parra, Peter Brusilovsky, and Christoph Trattner. 2014. **See what you want to see: visual user-driven approach for hybrid recommendation**. In Proceedings of the 19th international conference on Intelligent User Interfaces (IUI '14). ACM, New York, NY, USA, 235-240
- 2013 Katrien Verbert, Denis Parra, Peter Brusilovsky and Erik Duval. **Visualizing Recommendations to Support Exploration, Transparency and Controllability**. 18<sup>th</sup> ACM Conference In Intelligent User Interfaces, CA, USA, March 19-22
- 2012 Christoph Trattner, Yi-Ling Lin, Denis Parra, Zhen Yue and Peter Brusilovsky. **Evaluating Tag-Based Information Access in Image Collections**. 23rd ACM Conference on Hypertext and Adaptive Hypermedia. Milwaukee, WI, USA, June 25-28. (Nominated to best paper award)
- 2011 Denis Parra, Xavier Amatriain. **Walk the Talk: Analyzing the Relation between Implicit and Explicit Feedback for Preference Elicitation**. UMAP 2011, Girona, Spain. (Best student paper award)

2009 D. Parra, P. Brusilovsky, *Collaborative Filtering for Social Tagging Systems: an Experiment with CiteULike*. RecSys 2009, New York, NY, USA

### Teaching Experience

2017-2019 **Information Visualization**, PUC Chile, Taught at 2<sup>nd</sup> term each year.

2014-2021 **Introduction to the Major of Computer Science**. PUC Chile. Taught 1<sup>st</sup> term each year.

2014-2021 **Recommender Systems**, graduate course. PUC Chile. Taught at 2<sup>nd</sup> term each year.

2014-2017 **Data Mining**, graduate course, MPGI master program. PUC Chile. Taught at 1<sup>st</sup> term each year.

2006-2007 **Software Engineering (UML)**. Universidad Austral de Chile. Taught for two terms.

**Introduction to Programming (Java)**. Universidad Austral de Chile. Taught for one term.

2003-2004 **Introduction to Programming (Java)**. Universidad Austral de Chile. Taught for four terms.

2004 **Seminar on Multiagent Systems (Java)**. Universidad Austral de Chile. Taught for one term.

### Professional and Research Experience

06/19-16/20 **Consulting on Deep Neural Recommendation Systems**. Real State online company GoPlaceIT. Contact: Pablo Espinace (pablo@goplaceit.com)

06/10-09/10 **Research Internship on Implicit Feedback for Recommender Systems**. Telefonica Research & Development, Barcelona. Research Tutor: Dr. Xavier Amatriain (currently CTO Cure.ai)

06/09-09/09 **Research internship on Spreading Activation Methods**. KDEG lab at Trinity College Dublin and IBM Dublin. Research tutor: Dr. Alexander Troussov.

06/07-12/08 **Co-founder and Project Manager at Perceptum TI**, www.perceptum.cl, Valdivia, Chile

02/05-12/07 **IT Consultant, Cards Aquaculture Services**, Puerto Montt, Chile

- Elicitation of hardware acquisition, project manager of software development.

07/03-01/04 **Software Analyst and Programmer, Universidad Austral de Chile**, Valdivia, Chile

- Design and development of a Learning Management System. (PHP/MySQL)
- Implementation of a web search engine for Chilean research information (PHP, SQLServer)

01/02-03/02 **Professional internship, Software Developer. DMR Consulting**, Santiago, Chile

- Design and development of an Intranet for management of documentation related to Enterprise Application Integration projects (ASP/ SQL Server)

01/01-03/01 **Professional internship, Software Developer. Centro Informático UACH**, Valdivia, Chile

- Design and development of a tourism information system for SERNATUR, National Service of Tourism (PHP, Perl, PostgreSQL)

### Reviewing Activities/ Program Committee

2020 Reviewer at the journal ACM Transactions in Interactive and Intelligent Systems  
Senior PC member at ACM RecSys conference  
Senior PC member of ACM IUI conference  
Senior PC member of SIGIR conference  
PC member of The Web Conference (former World Wide Web Conference)

2020 Reviewer at the journal ACM Transactions in Interactive and Intelligent Systems  
Senior PC member at ACM RecSys conference  
Senior PC member of ACM IUI conference  
Senior PC member of SIGIR conference

PC member of IJCAI Conference  
PC member of CHI Conference  
PC member of The Web Conference (former World Wide Web Conference)  
PC member of the Visualization in Data Science Symposium, at IEEE Vis  
PC member of UMAP conference

2019 Senior PC member at ACM RecSys 2019 conference  
PC member of ACM IUI conference  
PC member of The Web Conference (former World Wide Web Conference)  
PC member of UMAP conference  
PC member of IJCAI conference

2018 Senior PC member at ACM RecSys 2018 conference  
PC member of ACM IUI conference  
PC member of The Web Conference (former World Wide Web Conference)  
Distinguished reviewer at the ACM TiiS journal  
Reviewer at IJHCS journal

2017 PC member of the CIKM 2017 conference  
PC member of the ACM RecSys 2017 conference  
PC member of the Transactions on Interactive and Intelligent Systems, ACM.  
PC member of 26th International World Wide Web Conference on the (WWW 2017)  
PC member of ACM SAC Conference 2017.