

# Curriculum Vitae

## Personal Information

- Full name: Felipe José Bravo Márquez
- Nationality: Chile.
- Date of Birth: 3rd of January 1984.
- Address: Avenida Beauchef 851, of. 304, Piso 3, Edificio Norte, Santiago, Chile / C.P. 837-0456
- Phone number: +56 2 2978 4974
- E-mail : fbravo at dcc.uchile.cl
- Public profiles: personal website, DCC Uchile, FCFM Uchile, IMFD, Uchile, Google Scholar, Linkedin, GitHub, DBLP, ResearchGate, Scopus, Semantic Scholar, Web of Science, Orcid, ACL Anthology, Youtube, Twitter.
- Areas of Interest: Natural language processing, Data mining, Data science, Machine learning, Information retrieval, Social media analytics, Computational social science, Artificial Intelligence, Statistics.

## Academic Positions and Work Experience

- [2024 - present] Associate Professor, Department of Computer Science, University of Chile.
- [2024 - present] Director, Data and Artificial Intelligence Initiative (ID&IA), Faculty of Physical and Mathematical Sciences (FCFM), University of Chile.
- [2024 -present] Principal Researcher, National Center for Artificial Intelligence Research (CENIA) .
- [2024 - present] Associate Researcher, Millennium Institute for Foundational Research on Data (IMFD).
- [2020 - present] Associate Member, Te Ipu o te Mahara, The Artificial Intelligence Institute at the University of Waikato.
- [2019 - present] Honorary Research Associate, Machine Learning Group, University of Waikato.
- [2019 - 2024] Assistant Professor, Department of Computer Science, University of Chile.
- [2021 - 2023] Associate Researcher, National Center for Artificial Intelligence Research (CENIA) .

- [2019 - 2024] Young Researcher, Millennium Institute for Foundational Research on Data (IMFD).
- [2017-2019] Research Fellow, Machine Learning Group, University of Waikato.
- [2011-2013] Research Engineer, Yahoo! Labs Latin America.
- [2009- 2011] Researcher and Software Developer, Web Intelligence Consortium Chile Research Centre.
- [2009] Internship, Simple, Software Developer.
- [2009] Internship, Previred, Business Process Management Area.
- [2005-2006] Internship, Vitamet, Software Developer.

## Qualifications

- PhD. Computer Science, University of Waikato (Jul. 2017)
- MSc. Computer Science, Universidad de Chile (Sep. 2013)
- Computer Science Engineer, Universidad de Chile (Nov. 2010)
- Industrial Engineer, Universidad de Chile (Nov. 2010)
- BSc. in Industrial Engineering, Universidad de Chile (Oct. 2010)
- BSc. Computer Science, Universidad de Chile (Jan. 2009)

## Teaching

- [CC6104] (Lecturer) Statistical Thinking (spring 2024, spring 2023, spring 2022, spring 2021), Computer Science Department, Universidad de Chile
- [CC66S] (Lecturer) Machine Learning (spring 2024, spring 2023, spring 2022, spring 2020), Computer Science Department, Universidad de Chile (Professional Diploma in Artificial Intelligence)
- [CC6205] (Lecturer) Natural Language Processing (fall 2024, fall 2023, fall 2022, fall 2021, fall 2020, spring 2019), Computer Science Department, Universidad de Chile
- [CC5206] (Lecturer) Introduction to Data Mining (fall 2024, fall 2023, fall 2022, fall 2021, spring 2020, fall 2020, spring 2019, fall 2019), Computer Science Department, Universidad de Chile
- [CEDCCPECO2] (Lecturer) Introduction to Machine Learning (Spring 2024), Computer Science Department, Universidad de Chile (Professional Diploma in Data Science)
- [CC66E] (Lecturer) Data Mining (fall 2019), Computer Science Department, Universidad de Chile (Professional Diploma in Data Science)

- [COMP321] (Lecturer) Practical Data Mining (spring 2018), Department of Computer Science, University of Waikato
- (Lecturer) Deep Learning for Natural Language Processing (June 2018) IfI Summer School 2018 on Machine Learning, Department of Informatics, University of Zurich.
- [COMP321] (Tutor) Practical Data Mining (spring 2017), Department of Computer Science, University of Waikato
- (Lecturer) Databases Management Diploma (spring 2013), Department of Informatics Engineering (postgraduate), Universidad Técnica Federico Santa María
- [CC5206/CC71Q] (Lecturer) Data Mining (spring 2012), Computer Science Department (undergraduate and postgraduate), Universidad de Chile
- [IN72K] (Lecturer) Information Technologies and Business Process Re-design (fall 2011), Master in Operations Management, Universidad de Chile
- [IN4522] (TA) Web Mining (spring 2010), Industrial Engineering, Universidad de Chile
- [IN7B0] (TA) ICT for globalization (spring 2010), Master in Management for Globalization, Universidad de Chile

## Grants

### As Principal Investigator

- [2020 - 2023] FONDECYT de Iniciación. Project Title: Tracking social public opinion: a stream-mining based approach. Code: 11200290
- [2020 - 2022] U-INICIA (Concurso de reforzamiento de inserción productiva de nuevos académicos VID Uchile). Project Title (in Spanish): Inducción Incremental de Léxicos Afectivos desde Twitter. Code: UI-004/20

### As Investigator

- [2023-2024] FONDEF VIU23P 0110. Project Title (in Spanish): “DashAI: Una plataforma interactiva de experimentación en Inteligencia Artificial”. In this project, I serve as the supervisor of my master’s student, Ignacio Nuñez who acts as PI.
- [2019-2020] False News on Facebook during the 2017 Chilean Elections: Analyzing Its Content, Diffusion, and Audience Characteristic, The Social Science Research Council.

## Service

- [June 2024] Evaluation of a proposal for a degree program at the Catholic University of Uruguay on Engineering and B.Sc. in Artificial Intelligence and Data Science for the Ministry of Education and Culture of Uruguay.
- [October 2023] Evaluation of a proposed undergraduate program at the University of Montevideo on Engineering in Data Science and Artificial Intelligence for the Ministry of Education and Culture of Uruguay.
- Area Chair: EMNLP 2020 track “Sentiment Analysis, Stylistic Analysis, and Argument Mining”.
- Conference Program Committees: CoMeDi-COLING 2025, NAACL 2024, LivingNER-IberLEF 2022, AAAI 2021, ACL 2021, TheWebConf 2021, ACL 2020, WISDOM 2020, NAACL 2019, LA-WEB 2019, WASSA 2018, WISDOM 2018, SEM-EVAL 2018, IJCAI-ECAI 2018, EMNLP 2017, WASSA 2017
- Journal Reviewing: Digital Journalism, Plos One, ACM Transactions on the Web (TWB), The Visual Computer (TVCJ), PeerJ Computer Science, Journal of Machine Learning Research, Natural Language Engineering, IEEE Transactions on Knowledge and Data Engineering, Knowledge-based Systems, ACM Transactions on Intelligent Systems and Technology (TIST), IEEE Computational Intelligence Magazine special issue on Computational Intelligence for Natural Language Processing.
- Grant reviewing: Fondecyt de Iniciación en Investigación 2022.

## University Administration

- [2024 - ongoing] Elected member of the Council of the Faculty of Physical and Mathematical Sciences of the University of Chile.
- [2022 - 2024] Elected member of the Departmental Council of the Department of Computer Science of the University of Chile.
- [2020-ongoing] Member of the academic committee of the Master in Data Science at the University of Chile,.
- [2019-2019] I participated in the elaboration of the Master in Data Science at the University of Chile.

## Technology transfer

- [2024] Consulting project through CENIA to Entel in the development of an internal chatbot for technicians in operation.
- [2024 - ongoing] Consulting project through the IMFD to the Inter-American Development Bank on the use of Machine Learning to predict educational alerts.

- [2022] I assisted the Chilean food company Agrosuper in its statistical experimentation methodology for production as part of an IMFD agreement.
- [2020-2021] As part of an IMFD agreement, I assisted the Supreme Court of Chile in the development of an automatic classifier of court rulings.

## Scholarships and Awards

- [2022] TWAS-LACREP Young Scientist Award 2022 in the Engineering Sciences (certificate).
- [2022] Recognition for outstanding contribution to the generation of scientific knowledge, University of Chile.
- [2021] Best Full-time Teaching Award, Department of Computer Science, University of Chile.
- [2017] University of Waikato Doctoral Publications Scholarship.
- [2016] IEEE student travel grant to attend the 2016 IEEE/WIC/ACM International Conference on Web Intelligence in Omaha, Nebraska, USA.
- [2014-2017] University of Waikato Doctoral Scholarship.
- [2011-2012] National Scientific and Technological Research Commission (CONICYT) Scholarship for master's degree studies at Chilean Universities.

## Publications

### Journal Papers

1. H. Sarmiento, R. Córdova, J. Ortiz, F. Bravo-Marquez, M. Santos and S. Valenzuela Unsupervised Framing Analysis for Social Media Discourse in Polarizing Events. In *ACM Transactions on the Web (TWEB)*, November 2024. DOI:10.1145/3711912 (pdf)
2. D. Schlechtweg, F.D Zamora-Reina, F. Bravo-Marquez, and N. Arefyev Sense Through Time: Diachronic word sense annotations for Word Sense Induction and Lexical Semantic Change Detection. In *Language Resources and Evaluation*, September 2024. DOI:10.1007/s10579-024-09771-7 (pdf)
3. M. Araneda, F. Bravo-Marquez, D. Parra, and R.F Cádiz MUSIB: Musical Score Inpainting Benchmark. In *EURASIP Journal on Audio, Speech, and Music Processing*, 2023, 19 (2023). DOI:10.1186/s13636-023-00279-6 (pdf)
4. P. Baéz, F. Bravo-Marquez, J. Dunstan, M. Rojas, and F. Villena Automatic Extraction of Nested Entities in Clinical Referrals in Spanish. In *ACM Transactions on Computing for Healthcare (HEALTH)*, Volume 3, Issue 3, July 2022. Pages 1–22. DOI:10.1145/3498324 (pdf)

5. J. Diaz, F. Bravo-Marquez and B. Poblete, Language Modeling on Location-Based Social Networks. In *ISPRS International Journal of Geo-Information*, Volume 11, Number 2, Article Number 147, February 2022. DOI: 10.3390/ijgi11020147 (pdf)
6. F. Bravo-Marquez and C. Tamblay Words, Tweets and Reviews: Leveraging Affective Knowledge Between Multiple Domains. In *Cognitive Computation*, Volume 14, January 2022. Pages 388-406. DOI: 10.1007/s12559-021-09923-9 (pdf)
7. F. Bravo-Marquez, A. Khanchandani, and B. Pfahringer Incremental word-vectors for time-evolving sentiment lexicon induction. In *Cognitive Computation*, Volume 14, January 2022. Pages 425-441. DOI:10.1007/s12559-021-09831-y (pdf)
8. F. Tobar, F. Bravo-Marquez, J. Dunstan, J. Fontbona, A. Maass, and D. Remenik, and J.F. Silva Data Science for Engineers: A Teaching Ecosystem. In *IEEE Signal Processing Magazine*, Volume 38, Issue 3, May 2021. Pages 144-153. DOI:10.1109/MSP.2021.3053551 (pdf)
9. J. Diaz, B. Poblete, and F. Bravo-Marquez An Integrated Model for Textual Social Media Data with Spatio-Temporal Dimensions. In *Information Processing & Management*, Volume 57, Issue 5, 2020. DOI:10.1016/j.ipm.2020.102219 (pdf)
10. D.G. Trye, A.S. Calude, F. Bravo-Marquez, and T.T. Keegan Hybrid Hashtags: #YouKnowYoureAKiwiWhen your Tweet contains Māori and English. In *Frontiers in Artificial Intelligence, section Language and Computation* Volume 3, Article 15, April 2020. DOI: 10.3389/frai.2020.00015. (pdf|supplementary Material)
11. F. Bravo-Marquez, E. Frank, B. Pfahringer, and S. M. Mohammad AffectiveTweets: a WEKA Package for Analyzing Affect in Tweets. In *Journal of Machine Learning Research* 20(92): Pages 1–6, 2019. (pdf)
12. S. Lang, F. Bravo-Marquez, C. Beckham, M. Hall, and E. Frank WekaDeepLearning4j: a Deep Learning Package for Weka based on DeepLearning4j. In *Knowledge-Based Systems*, Volume 178, 15 August 2019, Pages 48-50. DOI: 10.1016/j.knosys.2019.04.013 (pdf)
13. F. Bravo-Marquez, E. Frank, and B. Pfahringer Transferring Sentiment Knowledge between Words and Tweets. In *Web Intelligence* Volume 16, no. 4, 31 October 2018, Pages 203-220. DOI: 10.3233/WEB-180389 (pdf)
14. F. Bravo-Marquez, E. Frank, and B. Pfahringer Building a Twitter Opinion Lexicon from Automatically-annotated Tweets. In *Knowledge-Based Systems* Volume 108, 15 September 2016, Pages 65–78. DOI:10.1016/j.knosys.2016.05.018 (pdf)
15. J.D. Velásquez, Y. Covacevich, F. Molina, E. Marrese-Taylor, C. Rodríguez, and F. Bravo-Marquez DOCODE 3.0 (DOcument COpy DEtec-

tor): A system for plagiarism detection by applying an information fusion process from multiple documental data sources. In *Information Fusion* Volume 27, January 2016, Pages 64–75. DOI:10.1016/j.inffus.2015.05.006 (pdf)

16. E. Marrese-Taylor, J.D. Velásquez, F. Bravo-Marquez A Novel Deterministic Approach for Aspect-Based Opinion Mining in Tourism Products Reviews. In *Expert Systems with Applications* Volume 41, Issue 17, 1 December 2014, Pages 7764–7775. DOI:10.1016/j.eswa.2014.05.045 (pdf)
17. F. Bravo-Marquez, M. Mendoza and B. Poblete Meta-Level Sentiment Models for Big Social Data Analysis. In *Knowledge-Based Systems* Volume 69, October 2014, Pages 86–99. DOI:10.1016/j.knosys.2014.05.016 (pdf)

### Conference and Workshop Papers

1. M. J. Zambrano and F. Bravo-Marquez Optimization of Bias Mitigation in Word Embeddings: a Methodological Approach, In *Proceedings of the 23rd IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT 2024)*, Bangkok, Thailand 2024. (to appear) (pdf)
2. H. Sarmiento, J. Ortiz, F. Bravo-Marquez, M. Santos, and S. Valenzuela A Comparative Analysis of Offensive Discourse in the 2021 Chilean Presidential Campaign on Twitter and WhatsApp, In *Proceedings of the 23rd IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT 2024)*, Bangkok, Thailand 2024. (to appear) (pdf)
3. J. Cañete and F. Bravo-Marquez Speedy Gonzales: A Collection of Fast Task-Specific Models for Spanish, In *\*Sem '24: Proceedings of the 13th joint conference on lexical and computational semantics (\*Sem)*, June 2024, Mexico City, Mexico. Association for Computational Linguistics. Pages 176–189. (pdf)
4. M. J. Zambrano and F. Bravo-Marquez Unpacking Bias: An Empirical Study of Bias Measurement Metrics, Mitigation Algorithms, and their Interactions. In *Proceedings of the 2024 Joint International Conference on Computational Linguistics (COLING 2024)*, Torino, Italy. Association for Computational Linguistics. Pages 17154–17164. (pdf)
5. G. Iturra-Bocaz and F. Bravo-Marquez RiverText: A Python Library for Training and Evaluating Incremental Word Embeddings from Text Data Stream. In *Proceedings of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2023)*, Taipei, Taiwan. Association for Computing Machinery. Pages 3027–3036. DOI:10.1145/3539618.3591908 (pdf)
6. I. M. De la Jara, C. Rodriguez, E. Marrese-Taylor, and F. Bravo-Marquez

- An empirical study of the effect of video encoders on Temporal Video Grounding. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, 2023*, Paris, France. IEEE Xplore. Pages 2850-2855. DOI:10.1109/ICCVW60793.2023.00306 (pdf)
7. M. Rojas, F. Bravo-Marquez, and J. Dunstan Simple yet Powerful: An Overlooked Architecture for Nested Named Entity Recognition. In *Proceedings of the 29th International Conference on Computational Linguistics (COLING 2022)*, Gyeongju, Republic of Korea. Association for Computational Linguistics. Pages 2108-2117. (pdf)
  8. H. Sarmiento, F. Bravo-Marquez, E. Graells-Garrido, and B. Poblete Identifying and Characterizing New Expressions of Community Framing during Polarization. In *Proceedings of the 16th International AAAI Conference on Web and Social Media (ICWSM 2022)*, Atlanta, Georgia, USA. AAAI Press. Pages 841-851. (pdf)
  9. F. D. Zamora-Reina, F. Bravo-Marquez, and D. Schlechtweg LSCDiscovery: A shared task on semantic change discovery and detection in Spanish. In *Proceedings of the 3rd International Workshop on Computational Approaches to Historical Language Change (LCHANGE 2022)*, co-located with *ACL 2022*, Dublin, Ireland. Association for Computational Linguistics. Pages 149-164. (pdf), (codalab)
  10. V. Araujo, A. Caravallo, S. Kundu, J. Cañete, M. Mendoza, R. E. Mercer, F. Bravo-Marquez, M. Moens, and A. Soto Evaluation Benchmarks for Spanish Sentence Representations. In *Proceedings of the 13th Edition of The Language Resources and Evaluation Conference (LREC 2022)*, Marseille, France. Pages 6024-6034. (pdf)
  11. J. Cañete, S. Donoso, F. Bravo-Marquez, A. Caravallo, and V. Araujo ALBETO and DistilBETO: Lightweight Spanish Language Models. In *Proceedings of the 13th Edition of The Language Resources and Evaluation Conference (LREC 2022)*, Marseille, France. Pages 4291-4298. (pdf)
  12. A. Ansell, F. Bravo-Marquez, and B. Pfahringer PolyLM: Learning about Polysemy through Language Modeling. In *Proceedings of the 16th conference of the European Chapter of the Association for Computational Linguistics (EACL 2021)*, Kyiv, Ukraine. Pages 563-574. (pdf),(code).
  13. J. Cerezo, A. Bergel, and F. Bravo-Marquez Tools Impact on the Quality of Annotations for Chat Untangling. In *Proceedings of the Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing: Student Research Workshop*, Bangkok, Thailand. Pages 215-220 (pdf)
  14. J. Muñoz and F. Bravo-Marquez Interventions Recommendation: Professionals' Observations Analysis in Special Needs Education. In *Proceedings of the 16th Workshop on Innovative Use of NLP for Building Educational*



*Applications (BEA 2021)*, Co-located with EACL 2021, Kyiv, Ukraine. Pages 171-179 (pdf),(code).

15. P. Badilla, F. Bravo-Marquez, and J. Pérez WEFÉ: The Word Embeddings Fairness Evaluation Framework. In *Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020)*, Yokohama, Japan. Pages 430-436. DOI:10.24963/ijcai.2020/60. Acceptance rate: 12.6%. (pdf),(code).
16. F. D. Zamora-Reina, F. Bravo-Marquez DCC-Uchile at SemEval-2020 Task 1: Temporal Referencing Word Embeddings. In *Proceedings of International Workshop on Semantic Evaluation (SemEval-2020)*, Barcelona, Spain, 2020. Pages 194-200. (pdf)
17. A. Ansell, F. Bravo-Marquez, and B. Pfahringer An ELMo-inspired approach to SemDeep-5’s Word-in-Context task. In *Proceedings of the 5th Workshop on Semantic Deep Learning (SemDeep-5) co-located with IJCAI 2019 in Macau, China*. (pdf)
18. D. Trye, A. S. Calude, F. Bravo-Marquez, and T. T Keegan Māori Loanwords: A Corpus of New Zealand English Tweets. In *Proceedings of the 2019 ACL Student Research Workshop (SRW)*, Florence, Italy. (pdf)
19. F. Bravo-Marquez, S. Reeves, and M. Ugarte Proof-of-Learning: a Blockchain Consensus Mechanism based on Machine Learning Competitions. In *Proceedings of the 2019 IEEE International Conference on Decentralized Applications and Infrastructures (DAPPCON)*, April 2019, East Bay, San Francisco, California, USA. Pages 119-124. DOI:10.1109/DAPPCON.2019.00023. (pdf)
20. S. M. Mohammad, F. Bravo-Marquez, M. Salameh, and S. Kiritchenko Semeval-2018 Task 1: Affect in tweets. In *Proceedings of International Workshop on Semantic Evaluation (SemEval-2018)*, New Orleans, LA, USA, June 2018. (pdf)|(leaderboard)
21. S. M. Mohammad and F. Bravo-Marquez WASSA-2017 Shared Task on Emotion Intensity, In *Proceedings of the EMNLP 2017 Workshop on Computational Approaches to Subjectivity, Sentiment, and Social Media (WASSA)*, September 2017, Copenhagen, Denmark. (pdf)
22. S. M. Mohammad and F. Bravo-Marquez Emotion Intensities in Tweets, In *\*Sem ’17: Proceedings of the sixth joint conference on lexical and computational semantics (\*Sem)*, August 2017, Vancouver, Canada. (pdf)
23. F. Bravo-Marquez, E. Frank, S. M. Mohammad, and B. Pfahringer Determining Word–Emotion Associations from Tweets by Multi-Label Classification, In *WI ’16: Proceedings of the 2016 IEEE/WIC/ACM International Conference on Web Intelligence*, Omaha, Nebraska, USA 2016. Pages 536-539. DOI:10.1109/WI.2016.90 (pdf)

24. F. Bravo-Marquez, E. Frank, and B. Pfahringer From opinion lexicons to sentiment classification of tweets and vice versa: a transfer learning approach, In *WI '16: Proceedings of the 2016 IEEE/WIC/ACM International Conference on Web Intelligence*, Omaha, Nebraska, USA 2016. Pages 145-152. DOI:10.1109/WI.2016.29 (pdf)
25. F. Bravo-Marquez, E. Frank, and B. Pfahringer Annotate-Sample-Average (ASA): A New Distant Supervision Approach for Twitter Sentiment Analysis, In *ECAI '16: Proceedings of the 22nd Biennial European Conference on Artificial Intelligence*. The Hague, Holland 2016. IOS press. DOI:10.3233/978-1-61499-672-9-498 (pdf)
26. F. Bravo-Marquez, E. Frank, and B. Pfahringer Positive, Negative, or Neutral: Learning an Expanded Opinion Lexicon from Emoticon-annotated Tweets, In *IJCAI '15: Proceedings of the 24th International Joint Conference on Artificial Intelligence*. Buenos Aires, Argentina 2015.(pdf)|(poster)
27. F. Bravo-Marquez, E. Frank, and B. Pfahringer From Unlabelled Tweets to Twitter-specific Opinion Words, In *SIGIR '15: Proceedings of the 38th International ACM SIGIR Conference on Research & Development in Information Retrieval*. Santiago, Chile 2015. DOI:10.1145/2766462.2767770 (pdf)|(poster)
28. E. Marrese-Taylor, J.D. Velásquez, F. Bravo-Marquez OpinionZoom, a modular tool to explore tourism opinions on the Web, In *WI '2013: IEEE/WIC/ACM International Conference on Web Intelligence*. Industry Track. Atlanta, USA. DOI:10.1109/WI-IAT.2013.19 (pdf)
29. M. Mendoza, F. Bravo-Marquez, B. Poblete, and D. Gayo-Avello Long-memory Time Series Ensembles for Concept Shift Detection, In *KDD-BigMine '13 2nd International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications*. Chicago, USA 2013. DOI:10.1145/2501221.2501225 (pdf)
30. F. Bravo-Marquez, M. Mendoza and B. Poblete Combining Strengths, Emotions and Polarities for Boosting Twitter Sentiment Analysis, In *KDD-WISDOM '13: 2nd Workshop on Issues of Sentiment Discovery and Opinion Mining*. Chicago, USA 2013. DOI:10.1145/2502069.2502071 (pdf)
31. E. Marrese-Taylor, J.D. Velásquez, F. Bravo-Marquez, Y. Matsuo Identifying Customer Preferences about Tourism Products using an Aspect-Based Opinion Mining Approach, In *KES '13: 17th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems*. Kitakyushu, Japan, 2013. Procedia Computer Science. DOI:10.1016/j.procs.2013.09.094 (pdf)
32. F. Bravo-Marquez, D. Gayo-Avello, M. Mendoza and B. Poblete Opinion Dynamics of Elections in Twitter, In *LA-WEB '12: 8th Latin Ameri-*

*can Web Congress*. Cartagena de Indias, Colombia, 2012. IEEE Computer Society’s Conference Publishing Services (CPS). DOI:10.1109/LA-WEB.2012.11 (pdf)

33. F. Bravo-Marquez and M. Manriquez A Zipf-Like Distant Supervision Approach for Multi-Document Summarization Using Wikinews Articles, In *SPIRE ’12: 19th International Symposium on String Processing and Information Retrieval*. Cartagena de Indias, Colombia, 2012. Springer-Verlag. DOI:10.1007/978-3-642-34109-0\_15 (pdf)
34. F. Bravo-Marquez, G. L’Huillier, P. Moya, S.A. Rios, and J.D. Velasquez An Automatic Text Comprehension Classifier Based on Mental Models and Latent Semantic Features, In *I-KNOW ’2011: 11th International Conference on Knowledge Management and Knowledge Technologies*. Grass, Austria. ACM ICPS. DOI:10.1145/2024288.2024317 (pdf)
35. F. Bravo-Marquez, G. L’Huillier, S.A. Rios, and J.D. Velasquez A Text Similarity Meta-Search Engine Based on Document Fingerprints and Search Results Records, In *WI ’2011: IEEE/WIC/ACM International Conference on Web Intelligence*. Lyon, France. DOI:10.1109/WI-IAT.2011.27 (pdf)
36. F. Bravo-Marquez, G. L’Huillier, S. Rios, and J.D. Velasquez Hypergeometric Language Model and Zipf-like Scoring Function for Web Document Similarity Retrieval, In *SPIRE ’10: 17th International Symposium on String Processing and Information Retrieval*. Los Cabos, Mexico, 2010. Springer-Verlag. DOI:10.1007/978-3-642-16321-0\_32 (pdf)
37. F. Bravo-Marquez, G. L’Huillier, S. Rios, J.D. Velasquez, and L. Guerrero DOCODE-lite: A Meta-Search Engine for Document Similarity Retrieval, In *KES ’10: 14th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems*. Cardiff, Wales, 2010. Springer-Verlag. DOI:10.1007/978-3-642-15390-7\_10 (pdf)

### Non-peer reviewed articles

1. F. Bravo-Marquez Un recorrido por los modelos de lenguaje: Desde Shannon a GPT-4, In *Revista Bits de Ciencia* Volume 25 Pages 16-27, October 2023. (pdf)
2. F. Bravo-Marquez and J. Dunstan Procesamiento de Lenguaje Natural: dónde estamos y qué estamos haciendo, In *Revista Bits de Ciencia* Volume 21 Pages 45-47, July 2021. (pdf)

### Theses

- PhD Thesis: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis (pdf), (examiner’s report).

- Master's Thesis (first four pages in Spanish): Static and Dynamic Analysis of Opinions in Twitter (pdf).
- Undergraduate Thesis (in Spanish): Diseño e Implementación de un Metabuscador de Párrafos para la Recuperación de Documentos Similares en la Web (pdf).

## Students

### PhD

- [2022 - ongoing] Fabián Villena, Co-supervised with Jocelyn Dunstan, PhD, University of Chile.
- [2019 - ongoing] Frank Zamora, PhD, University of Chile.
- [2020 - 2023] Hernán Sarmiento, Co-supervised with Bárbara Poblete, PhD, University of Chile.
- [2019- 2023 ] Juglar Díaz, Co-supervised with Bárbara Poblete, PhD, University of Chile.

### Master

- [2024 - ongoing] Tomás Guzmán, Master in Data Science, University of Chile.
- [2024 - ongoing] Valentina Castro, Master in Data Science, University of Chile.
- [2024 - ongoing] Benjamín Farías, Master in Data Science, University of Chile.
- [2024 - ongoing] Nicolás Brandstetter, Master in Computer Science, University of Chile.
- [2023 - ongoing] Victor Faraggi, Co-supervised with Jorge Silva, Master in Computer Science, University of Chile.
- [2022 - ongoing] Ignacio Núñez, Master in Computer Science, University of Chile.
- [2021 - ongoing] Jorge Ortiz, Master in Computer Science, University of Chile.
- [2022 - 2025] María José Zambrano, Master in Computer Science, University of Chile.
- [2023 - 2025] César Véliz, Co-supervised with Claudia López, Master in Data Science, University of Chile.
- [2023 - 2025] Natalia Abarca, Co-supervised with Claudia López, Master in Data Science, University of Chile.

- [2022 - 2024] Ignacio Meza, Co-supervised with Edison Marrese and Cristian Rodriguez-Opazo, Master in Computer Science, University of Chile.
- [2021 - 2023] José Cañete, Master in Computer Science, University of Chile.
- [2021 - 2023] Gabriel Iturra, Master in Computer Science, University of Chile.
- [2021 - 2023] Mauricio Araneda, Co-supervised with Denis Parra, Master in Computer Science, University of Chile.
- [2020 - 2022] Matías Rojas, Co-supervised with Jocelyn Dunstan, Master in Computer Science, University of Chile.
- [2020 - 2022] Javier Muñoz, Master in Computer Science, University of Chile.
- [2019-2020] Pablo Badilla, Co-supervised with Jorge Pérez, Master in Computer Science, University of Chile.
- [2019] Arun Khanchandani, Co-supervised with Bernhard Pharinger, Master in Computer Science, University of Waikato.
- [2019-2020] Alan Ansell, Co-supervised with Bernhard Pharinger, Master in Computer Science, University of Waikato.

### **Undergraduate**

- [2024 - ongoing] Nicolás Olguín, Computer Science Engineering, University of Chile.
- [2024 - ongoing] Isaías Venegas, Computer Science Engineering, University of Chile.
- [2023 - 2024] Millaray Valdivia, Computer Science Engineering, University of Chile.
- [2022 - 2023] Rodrigo Urrea, Computer Science Engineering, University of Chile.
- [2022 - 2023] Oziel Aguilera, Computer Science Engineering, University of Chile.
- [2022 - 2023] Maximiliano Aguilar, Co-supervised with Claudia López, Computer Science Engineering, University of Chile.
- [2021 - 2022] María José Zambrano, Co-supervised with Pablo Badilla, Computer Science Engineering, University of Chile.
- [2021 - 2022] Ignacio Meza, Co-supervised with Amanda Williamson, Electrical Engineering, University of Chile.

- [2019-2020] Cristián Tamblay, Computer Science Engineering, University of Chile.
- [2019] David Trye, Co-supervised with Andreea Calude, “Māori Borrowings in Science Digital Media”, Summer Research Scholarship, University of Waikato.
- [2018] Nicole Chan, Co-supervised with Andreea Calude, “Social Media Meets Te Reo Māori Loanwords”, Honours Project, University of Waikato.
- [2018] Joshua Lovelock, Co-supervised with Eibe Frank, “Automatic Detection of Hate Speech”, Honours Project, University of Waikato.
- [2018] Tristan Anderson, Co-supervised with Bernhard Pfahringer, “Building Time-Evolving Opinion Lexicons”, Honours Project, University of Waikato.
- [2012-2013] Edison Marrese Taylor, Co-supervised with Juan Velásquez, “Diseño e Implementación de una Aplicación de Web Opinion Mining para Identificar Preferencias de Usuarios sobre Productos Turísticos de la X Región de los Lagos”, Industrial Engineering, U. of Chile.
- [2012] Luis Maldonado, Co-advisor with Mauricio Marín, “Análisis de Sentimiento en el Sistema de Red Social Twitter”, Execution Informatics Engineering, U. of Santiago.

## Short Courses

- MLSS 2015, Machine Learning Summer School, February 16-25, 2015, Sydney, Australia.
- Forecasting, a short course taught by Bruce E. Hansen at Central Bank of Chile, October 29-31, 2013.

## Academic Visits

- [July 2018] Institute of Computational Linguistics, University of Zurich, hosted by Martin Volk.
- [September 2017] Institute of Computational Linguistics, University of Zurich, hosted by Manfred Klenner.
- [October 2016] National Research Council Canada (NRC), hosted by Saif Mohammad.

## Seminars and Talks

- [December 2024] Journées Scientifiques Inria Chile 2024 - part of the panel “The AI <-> HPC infra landscape greedy vs frugal alternatives and experiences”

- [October 2024] A Tour through the Language Models: from Shannon to GPT-4. Invited Talk at the Institute of Informatics, Austral University, Valdivia
- [September 2024] A Tour through the Language Models: from Shannon to GPT-4. Invited Talk at CMM Pucón Symposium 2024
- [April 2024] What are LLMs (large language models) and how do they work?, Department of Linguistics, University of Chile
- [January 2024] What are LLMs (large language models) and how do they work?, Digital Technologies and Indigenous Languages Workshop at DCC Uchile
- [December 2023] Large Language Models Usage and Evaluation Patterns, CENIA seminar at DCC Uchile
- [October 2023] JCC2023, Jornadas Chilenas de Computación, Concepción, Chile A Tour through the Language Models: from Shannon to GPT-4. Guest Speaker.
- [July 2023] Escuela Internacional en Ciencias Sociales Computacionales 2023 (IMFD-CICADA-UMAD), Montevideo, Uruguay Talk 1: Natural Language Processing in the last decade. Talk 2: Introduction to Bayesian Inference.
- [August 2023] IMFD & CENIA at Centro de Innovación UC, DashAI: An Interactive AI Experimentation Tool.
- [July 2023] Unholster, DashAI: An Interactive AI Experimentation Tool.
- [July 2023] Summer Institute in Computational Social Science, Chile 2023 A Tour through the Language Models: from Shannon to GPT-4. (slides)
- [May 2023] A Tour through the Language Models: from Shannon to GPT-4. A talk given as part of the DCC, Uchile lecture cycle on language models. (slides)
- [August 2022] Noche Cenia, Máquinas Dialogantes. An informal talk given in a pub in Santiago, Chile as part of the outreach activities of the National Center of Artificial Intelligence. (flyer)
- [July 2022] Millennium Institute for Foundational Research on Data (IMFD). Tackling Fairness, Change and Polysemy in Word Embeddings.
- [May 2022] Data Science Institute (DSI), Imperial College London. Tackling Fairness, Change and Polysemy in Word Embeddings.
- [January 2022] First Friday Meeting at Facebook (Meta) Research. Will we ever understand Facebook's influence on elections? A scientists' perspective.

- [December 2021] AI Lab at PUC. Tackling Fairness, Change and Polysemy in Word Embeddings.
- [August 2021] FCFM- Iniciativa de Datos e Inteligencia Artificial (D&IA), Análisis de emociones y sentimientos en medios de comunicación social.
- [August 2021] Enaex Robotics, Introduction to Machine Learning
- [October 2020] WOPATEC 2020 - CILCC-2020, Invited talk: Sesgo en Word Embeddings (acta congreso)
- [January 2020] Universidad Adolfo Ibañez, Seminario: Sistematizando la participación ciudadana. Análisis de emociones y sentimientos en medios de comunicación social.
- [July 2019] AI Lab at PUC. Sentiment Analysis and NLP. Hosted by Álvaro Soto.
- [June 2019] AMW Data Science School 2019. Tutorial: Deep Learning for Natural Language Processing.
- [November 2018] Asia-Pacific iSchools Regional Meeting 2018 19 November 2018, Hamilton, New Zealand: Emotion Intensties of Tweets.
- [March 2018] Natural Language Processing in NZ Meetup. Tutorial: Using Sentiment Analysis as a Case Study for Introducing Modern NLP Concepts.
- [February 2018] University of Waikato. Tutorial: Using Sentiment Analysis as a Case Study for Introducing Modern NLP Concepts.
- [January 2018] Universidad de Chile. Tutorial: Using Sentiment Analysis as a Case Study for Introducing Modern NLP Concepts.
- [January 2018] Pontifica Universidad Catolica de Chile. Invited talk at CIWS Workshop - Future of Data: Emotion Intensties of Tweets.
- [September 2017] Institute of Computational Linguistics, University of Zurich: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.
- [October 2016] National Research Council Canada (NRC): Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.
- [September 2016] University of Melbourne, hosted by Timothy Baldwin: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.
- [July 2016] Pontifica Universidad Catolica de Chile: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.
- [July 2016] Universidad de Chile: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.



- [June 2016] Universidad Tecnica Federico Santa Maria: Acquiring and Exploiting Lexical Knowledge for Twitter Sentiment Analysis.

## Software

- Dash AI: An Interactive AI Experimentation Tool
- WEFE: The Word Embeddings Fairness Evaluation Framework.
- AffectiveTweets, a Weka package for analysing emotion and sentiment of tweets.
- Contributor to the NLP modules of the WekaDeepLearning4j package.
- Some code for building sentiment lexicons from tweets is here (the core of this code has been integrated into AffectiveTweets).

## Shared Task Organisation

- Co-organizer of the LChange'22 Semantic Change Detection in Spanish Task.
- Co-organizer of the SemEval-2018 Task 1: Affect in Tweets.
- Co-organizer of WASSA-2017 Emotion Intensity Detection Task.

## Media Outreach

- Las tecnologías de vanguardia que comenzarán a imponerse desde 2025, El Mercurio, Chile Tecnológico, December 27 ,2024 (pdf)
- Prof. Felipe Bravo asume como director de la Iniciativa de Datos e Inteligencia Artificial FCFM, Comunicaciones, FCFM, Uchile, November 2024
- Investigador en IA y Datos de la Universidad de Chile visitó el Instituto de Informática UACH, Comunicaciones, Instituto de Informática, Universidad Austral, November 2024
- El avance del Caso Audio y el último lanzamiento de OpenAI Rat Pack de Mesa Central. Teletrece Radio Program. Quoted in conversation with journalist Paloma Ávila, October 2024
- Interviewed in Tv show Neurópolis Channel NTV Chile Season 2 Chapter 5: “Artificial Intelligence”, October 2024
- OpenAI elige la Facultad de Ciencias Físicas y Matemáticas para su arribo a América Latina, Noticias Uchile, August 2024
- Profesor Felipe Bravo Márquez es ascendido a Profesor Asociado de la Universidad de Chile, Comunicaciones DCC Uchile, August 2024

- Google y OpenAI están en una dura batalla por dominar la IA: El Mercurio, Vida Ciencia y Tecnología, May 15,2024 (pdf)
- Profesor Felipe Bravo Márquez participó en delegación de la Universidad de Chile que visitó China, Comunicaciones DCC Uchile, May 2024
- Profesor Felipe Bravo Márquez asume como investigador principal de CENIA, Comunicaciones DCC Uchile, March 2024
- Invited Guest for U-Campus Webinar: Transformación Educativa, Integrando la Inteligencia Artificial, December 2023
- Dash AI: Plataforma interactiva de código abierto, ANID, September 2023
- Glosario para no perderse por los nuevos caminos de la inteligencia artificial: El Mercurio, Vida Ciencia y Tecnología, April 13,2023 (pdf)
- Discriminación, pérdida de empleos y desinformación son algunos de los temores que conlleva la inteligencia artificial: El Mercurio, Vida Ciencia y Tecnología, April 1,2023 (pdf)
- Cuatro Cabezas 13c Radio Interview with Kike Mujica on ChatGPT, minute 24
- OpenAI lanzó GPT-4:La inteligencia artificial de ChatGPT mejora con nueva versión: El Mercurio, Vida, Ciencia y Tecnología, March 16, 2023 (pdf)
- Felipe Bravo es distinguido con el Premio TWAS-LACREP Young Scientists Award 2022: CENIA
- Profesor Felipe Bravo Márquez recibe reconocimiento como científico joven destacado: FCFM Uchile
- Comunidad DCC participa en el Aniversario 180 de la Universidad de Chile: Comunicaciones DCC Uchile
- Profesor Felipe Bravo Márquez y estudiante de doctorado Frank Zamora organizaron competencia de detección de cambio léxico semántico: Comunicaciones DCC Uchile
- Investigadores Cenía conversan con diario El Mercurio sobre el futuro de los motores de búsqueda: Cenía 2022
- Los buscadores entenderán el contexto de una pregunta y recopilarán la información desde muchas fuentes: El Mercurio, Vida, Ciencia y Tecnología, June 6, 2022 (pdf)
- Beauchef Magazine 2021: Inteligencia artificial para el apoyo de la educación diferencial
- Investigadores del DCC participan en nuevo Centro de Inteligencia Artificial (CenIA)

- DCC realizó tradicional ceremonia de reconocimiento a estudiantes y profesores destacados
- Nano Break - Capítulo 5 - Sesgo algorítmico en IA: qué es y cómo combatirlo.
- Les Doctores Salvajes - Entrevista a Felipe Bravo
- IMFD - IA y clasificación de contenidos: el desafío en el que trabajan el Poder Judicial y el IMFD
- IMFD - Modelos de análisis de lenguaje que evolucionen en el tiempo: el proyecto de Felipe Bravo que se adjudicó un Fondecyt de Iniciación
- FCFM Uchile - Ocho investigaciones patrocinadas por la FCFM son beneficiadas con Fondecyt de Iniciación
- Sesgo Algorítmico: a video about our research on bias in word embeddings
- Word Embedding Fairness Evaluation - an invited blog post about WEFE published in KDnuggets
- FCFM Uchile - Investigadores DCC publican trabajo que aborda problema de sesgo algorítmico
- FCFM Uchile - Prof. Felipe Bravo publica investigaciones sobre dos desarrollos de software de código abierto
- DCC Uchile - DCC integra a dos nuevos académicos de jornada completa
- University of Waikato - When machine learning, Twitter and te reo Māori merge
- RadioNZ - NZ's unique te reo tweets

## Technical Skills

- Programming Languages: Java, R, Python, C,C++.
- Database Systems: PostgreSQL, MySQL, MongoDB.

## Languages

- Spanish: Native.
- English: Fluent, TOEFL IBT 103/120.
- German: Average, Sprachdiplom Zweite Stufe.

## References

- Bernhard Pfahringer: Full Professor, University of Waikato.
- Eibe Frank: Full Professor, University of Waikato.

- Saif M. Mohammad: Senior Research Scientist, National Research Council Canada (NRC).

Felipe José Bravo Márquez

Santiago, Chile, January 16th, 2025