Belén Carolina Saldías Fuentes

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EDUCATION

Massachusetts Institute of Technology (MIT) – Cambridge, MA, USA

Ph.D. Candidate in Media Arts & Sciences GPA 5.0/5.0   September 2018 – Expected Feb 2025
- Thesis: Leveraging Large Language Models (LLMs) to facilitate community-centered online governance
- Committee: Prof. Deb Roy (advisor), Prof. Jonathan Zittrain, Prof. Rosalind Picard
- Relevant courses: Natural Language Processing, Advances in Computer Vision, and Affective Computing

Pontificia Universidad Católica de Chile (PUC) – Santiago, Chile

M.S. Machine Learning GPA 6.7/7.0   August 2016 – August 2017
B.S. Industrial Engineering Information Technology GPA 6.1/7.0   March 2012 – August 2017
- M.S. Thesis: A full probabilistic model for yes/no type crowdsourcing in multi-class classification
- M.S. Committee: Prof. Pavlos Protopapas (advisor, Harvard University), Prof. Karim Pichara

RESEARCH AND PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology – Cambridge, MA, USA

Research Assistant, MIT Center for Constructive Communication   2021 – present
- Led the process to architect, implement, and evaluate Odessa, a new decentralized social network app.
- Implemented state-of-the-art LLM-based algorithms to re-imagine healthier online spaces.
- Currently running a month-long deployment study with young adults to evaluate Odessa's decentralized governance features. Further, we are evaluating performance of the LLMs-human collaboration.
- Designed a new approach for child-centered content moderation [M1, P1, P5].

Research Assistant, MIT Media Lab   September 2018 – present
- Led and deployed a randomized controlled experiment (RCT) to help increase emotional awareness [C4].
- Developed and deployed a browser extension to mark Twitter posts in users' feeds. The extension was powered by machine learning algorithms that classify tweets into different sentiment categories [M5, M6].
- A two-week study showed that Affective Network, which allows for filtering emotions in Twitter's news feeds, helps users understand that the content they consume and create can influence them and others.
- Evaluated Gobo, a social media platform that allows users to control their feed with multiple filters; focused on transparency, control, and agency [C6].

Research Assistant, Laboratory for Social Machines   2018 – 2021
- Co-led a field study over four months with middle-schoolers attending a high-poverty school largely serving Black and Hispanic students to explore how technology might help bridge mentorship gaps [R1].
- Designed and implemented, from scratch, a social network, which included a conversational agent that matched students to role models based on the students' and role models' stories.

Google LLC – Remote, MA, USA

Research Intern, Google Research, Montreal Translate Team   June 2021 – August 2021
- Proposed a simple way to reduce human-evaluation cost for machine translation models by reducing the number of text segments that must be annotated [C2].
- Rapidly learned Google's development infrastructure to effectively drive design, implementation, and experimentation.

Falabella Retail S.A. – Santiago, Chile

Lead Data Scientist and Corporate Web Intelligence Engineer September 2017 – June 2018
- Led first data science team to outperform the user experience and findability at Falabella.com using a machine learning pipeline.
- Grew the data science team by recruiting and interviewing 5 new data science team members; trained new team members through onboarding and supervised deliverables.
- Worked with cross-functional teams, including business managers and software developers, to better understand user behavior and enhance user experience and the performance of the search engine.
- Increased conversion rate of e-commerce site, earned award from the CEO and company-wide recognition.

Machine Learning Intern August 2016 – December 2016
- Full-stack development of the first in-house recommender system; grew company's machine learning capacities and strategy.

Harvard University – Cambridge, MA, USA

Research Assistant March 2016 – August 2017
- Developed my master's thesis at the Institute of Applied Computational Science (IACS), focused on approximate variational inference for crowdsourcing labels [C5].

Consultant October 2016 – July 2017

Freelance
- Independently consulted leading projects on Customer Intelligence.
- Developed optimized data preprocessing and models through tens of GB of data.
- Defined a set of quick-win promotions to find the relationship between brands and type of products.
- Classified clusters of customers according to their buying behavior to give personalized service.

TEACHING & MENTORSHIP EXPERIENCE

Massachusetts Institute of Technology – Cambridge, MA, USA

Instructor, Machine Learning and Data Science (graduate)*,* June 2022 and May 2023

Ph.D. Teaching Assistant, Understanding Public Thought (graduate), Fall 2020

Ph.D. Teaching Assistant, Applied Machine Learning (graduate), Fall 2019

Ph.D. Teaching Assistant, Introduction to Machine Learning (422 undergraduate students), Fall 2019

MIT Undergraduate Research Opportunities Mentor
- 2020 – Trudy Painter (freshmen year, now at Google Creative Lab)
- 2024 – Sasha Krigel (currently in sophomore year)

Teaching Development Fellow, 2021 – 2023
- Developed workshops, resources, and opportunities for the pedagogical development for graduate students the MIT Media Lab.

Kaufman Teaching Certificate, Fall 2020
- Participated in eight practice-based workshops, evaluated on my teaching skills through microteaching sessions, received individual feedback from peers and teaching experts, and implemented evidence-based teaching techniques grounded in the scholarship of teaching and learning.

Pontificia Universidad Católica de Chile – Santiago, Chile

Adjunct Professor, Data Mining (undergraduate and graduate)*, August 2017 – December 2017*

Adjunct Professor, Data Mining and Management (graduate)*, March 2018 – July 2018*

Adjunct Professor, Advanced Computer Programming (200 undergraduate students)*, March 2018 – July 2018*

- Designed syllabi, curriculum, lectures, assessments, and feedback processes for all adjunct appointments.

Teaching Assistant, Computer Science Department*, 2013 - 2017*

- Served as Chief Teaching Assistant for 8 computer science and engineering classes (2013 – 2017), including Advanced Programming, Stochastic Models, Bayesian Inference, Data Structure and Algorithms.
- Managed teams of 3-30 teaching assistants (academic and administrative management).

FELLOWSHIPS, GRANTS & AWARDS

2023 – MIT-Chile Research Workshops. Raised $30K.

2023 – MIT Women of Excellence Award. MIT.

2023 – Travel Grant, $3K. MIT Media Lab.

2022 – Travel Grant, $2K. MIT Media Lab.

2021 – 2023 Teaching Development Fellowship, $4K. MIT.

2019 – Travel Grant, $6K. MIT Media Lab.

2019 – Travel Grant, $1K. Women in Machine Learning.

2018 – Award for Highest Teaching Quality. PUC, Chile.

2017 – Award for Best Computer Science Thesis. PUC, Chile.

2017 – Research Fellowship, $6K. Harvard IACS.

2016 – Academic Excellence Scholarship. PUC, Chile.

2015 – Award for Exceptional Quality as Teaching Assistant. PUC, Chile.

2012 – Honor and Academic Excellence Scholarship. PUC, Chile.

2012 – Top National Score in Mathematics, Ministry of Education of Chile.

ACADEMIC CONFERENCE PUBLICATIONS

C1. Overney, C., **Saldias, B.**, Dimitrakopoulou, D., & Roy, D. (March 2024) *SenseMate: An Accessible and Beginner-Friendly Human-AI Platform for Qualitative Data Analysis*. Proceedings of the 29th International Conference on Intelligent User Interfaces (IUI), Greenville, South Carolina. Contribution: Led the implementation, training setup, and evaluation framework for rationale extraction models. paper.

C2. **Saldias, B.**, Foster, G., Freitag, M., & Tan, Q. (2022, May) *Toward More Effective Human Evaluation for Machine Translation*. Proceedings of the 2022 ACL Workshop on Human Evaluation of NLP Systems (HumEval). ACL, Dublin, Ireland. paper.

C3. **Saldias, B.**, & Roy, D. (2020, July) *Exploring aspects of similarity between spoken personal narratives by disentangling them into narrative clause types*. Proceedings of the 2020 ACL Workshop on Narrative Understanding, Storylines, and Events (NUSE). ACL. paper. video. repo.

C4. **Saldias, B.**, & Picard, R. (2019, September). *Tweet Moodifier: Towards Giving Emotional Awareness to Twitter Users*. Proceedings of the 2019 International Conference on Affective Computing and Intelligent Interaction (ACII). IEEE. Cambridge, UK. paper. media.

C5. **Saldias, B.**, Protopapas, P., & Pichara, K. (2019, May). *A Full Probabilistic Model for Yes/No Type Crowdsourcing in Multi-Class Classification*. Proceedings of the 2019 SIAM International Conference on Data Mining (SDM) (pp. 756-764). SIAM. Calgary, Canada. paper.

C6. Bhargava, R.*, Chung, A., Gaikwad, N., Hope, A., Jen, D., Rubinovitz, J., **Saldias, B.***, & Zuckerman, E. (2019, November). *Gobo: A System for Exploring User Control of Invisible Algorithms in Social Media*. Submitted to the 2019 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW). ACM. *All authors contributed equally to this research. paper.

C7. **Saldías, Belén.** (2017, August) *A full probabilistic model for yes/no type crowdsourcing in multi-class classification*. Santiago, Chile: Pontificia Universidad Católica de Chile. (master's thesis). paper. repo. Advisors: Prof. Karim Pichara (PUC, Chile), and Prof. Pavlos Protopapas (Harvard, USA).

UNDER REVIEW

R1. **Saldias, B.***, Gillani, N.*, Makini, S.*, Hughes, M.*, & Roy, D.* (2021) *Exploring a Human-Bot Partnership to Bridge Childhood Mentorship Gaps through Personal Narratives*. preprint. web page. * Equal contributions.

OTHER ACADEMIC AND RELATED VENUES

Posters

P1. **Saldias, B.**, (July 2024) *Designing Child-Centered Content Exposure and Moderation*. Presented as a poster at the 10th International Conference on Computational Social Science (IC2S2), Philadelphia, USA. paper.

P2. **Saldias, B.**, & Roy, D. (2020, July) *Exploring aspects of similarity between spoken personal narratives by disentangling them into narrative clause types*. WiML at ICML.

P3. **Saldias, B**., & Roy, D. (2019, December). *Understanding story similarity for personal narratives*. 14th Women in Machine Learning (WiML) Workshop co-located with NeurIPS. Vancouver, Canada.

Book contributions

P4. Pichara, K., & Pieringer, C., (2017). *Advanced Computer Programming in Python*.

Leader at workshop sessions

P5. **Saldias, B.**, & Ali, S. (2020, July). *Towards Children-Aware Machine Learning with a Focus on NLP Challenges and Applications*. 1st WiML Un-Workshop co-located with ICML. repo.

INVITED TALKS AND LECTURES

Keynote Talk

- 2023 – *Does AI Hold the Same Values We Do?* TEDx Speaker, invited by TEDx Bentley U.
- 2023 – *From Words to Online Content Moderation*, Keynote speaker, MIT – Chile Research Workshop.
- 2022 – *Machine Learning in Industry*, Keynote speaker, hosted by Agrosuper, Chile.
- 2020 – *Data Science in Industry*, Keynote speaker, U. of Concepción, Chile.
- 2020 – *Innovation and Entrepreneurship*, Keynote speaker, U. La Sabana, Colombia.

Research Talk

- 2023 – *Decentralized content moderation*. MIT, hosted by Prof. Joseph Paradiso.
- 2023 – *LLMs and shaping healthier online spaces*. MIT, hosted by Generative AI Teaching Staff.
- 2021 – *Ethical online experiments for mental health.* MIT, hosted by Prof. Roz Picard.
- 2019 – *Ethical online experiments with human subjects.* MIT, hosted by Prof. Roz Picard.
- 2019, 2020 – *Advances in Human-Computer Interaction*. PUC Chile, hosted by Prof. Denis Parra.

Guest Lecture

- 2024 – *Machine Learning Research and Technology*. KAIST, Korea, hosted by Prof. Hyeon Yeo.
- 2023 – *LLMs, responsible sentiment analysis and content moderation*. MIT, hosted by Prof. Roz Picard.
- 2023 – *LLMs and Us: How well can LLMs represent my values?* Ars Electronica, invited by JKU, Austria.
- 2023 – *Intro to Machine Learning and Generative AI*. MIT MISTI and MIT GSL.
- 2022 – *Probabilistic Models for Clustering*. PUC Chile.
- 2022 – *Intro to Machine Learning*. MIT MISTI and MIT GSL.
- 2022 – *Responsible affect manipulation and social media*. MIT, hosted by Prof. Roz Picard.
- 2022 – *Working with Teaching Assistants*. MIT Teaching + Learning Lab.
- 2020 – *Research in Machine Learning*. PUC CS/DCC Chile, PhD Seminar.

Panels
- 2021 – *Developing a Research Thesis*. Introduction to Media Arts and Sciences at MIT.
- 2020 – *Mitigating Bias in Analytics*. Hosted by Women in Analytics and Tableau <u>video</u>.
- 2028 – *End-to-end machine learning in industry*. Hosted by Women in Data Science. Santiago, Chile. <u>website</u>.

PROGRAM COMMITTEE AND REVIEWER ACTIVITIES

Program Committee
- 2023 – Program Committee at <u>FAcct2023</u>.
- 2022 – Program Committee at Data-driven Humanitarian Mapping, <u>KDD</u>.

Referee
- 2021 – Reviewer for CHI Full Papers.
- 2020 – Reviewer for the ICML Deploy and Monitor ML workshop.
- 2019 – Reviewer for the 14th NeurIPS WiML workshop.

LEADERSHIP AND SERVICE

2023 – General Chair, MIT-Chile Research Workshops in Human-Centered A.I. and Data Visualization.
- Chaired the first workshop of its kind in Chile by leading a team of 3 program chairs and programming of 10 days of conference and workshop. Hosted two locations: Santiago and Concepción.
- Individually raised $30K from prestigious sponsors to host more than 100 students, 20 speakers and 8 lecturers (flying from multiple top universities, including MIT, Harvard, and Notre Dame).
- Topics ranged from bias in machine learning, to brain-computer interaction, and activities from drawing and storytelling with data to a live EEG demo. <u>See more</u>.

2022 - 2023 – Board of Directors at Women in Machine Learning (WiML).

2022 – Program Committee and Volunteer at <u>MIT Path to Professorship</u>.

2020 - 2021 – Executive Council Co-Chair, MIT Sidney Pacific Graduate Community. MIT Sidney Pacific homes nearly 650 graduate students from many corners of the world. Media coverage: [M7].

2020 – Logistics and Funding Chair for the Workshop for Women in Machine Learning at NeurIPS.

2020 – Super-volunteer for the 1st WiML Un-Workshop at ICML.

PRINTED MEDIA

M1. 2024 – *Artificial Intelligence & Work*. <u>Art exhibition</u>, Museum for Communication Berlin, Germany.

M2. 2023 – *Chileans in Artificial Intelligence*. DF MAS. Most important financial portal in Chile. <u>online</u>. <u>pdf</u>.

M3. 2023 – *Chileans' Research at MIT*. El Mercurio. <u>online</u>. <u>link</u>.

M4. 2020 – *Six women leave footprints in Boston, one of the most important tech hubs in the world.* El Mercurio's cover, Chile, 2020. El Mercurio is considered the oldest daily in the Spanish language. <u>pdf</u>.

M5. 2019 – *This is how emotions spread on Twitter*. El País, Spain. Second most circulated newspaper in Spain.

M6. 2019 – *Research in Spanish at the MIT Media Lab.* La Razón, Spain.

ONLINE MEDIA

M7. 2021 – *Reinventing the graduate community during the pandemic at MIT*. MIT News. Cambridge, MA. <u>online</u>.

SKILLS
- Programming: Python full stack, React Native, AWS Lambda, Docker, Terraform, GraphQL, Xcode.
- Languages: Spanish (native speaker), English (full professional working proficiency).