Maria Leonor Pacheco

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Education

2022 **Ph.D. Computer Science,** Purdue University (expected).
Thesis: *Neural-Symbolic Modeling for Natural Language Discourse*

2013 **B.Sc. Computer Science and Engineering,** Universidad Simon Bolivar.
Honors thesis: *Information Extraction from Twitter During Mass Emergency Situations.*

Employment History

Jan 2017 – *present* **Graduate Research Assistant,** Natural Language Processing Group, Dept. of Computer Science, Purdue University. IN, USA.

May 2021 – Aug 2021 **Research Intern,** Microsoft Research. Remote, USA.

May 2019 – Jul 2019 **Research Intern,** Conversational Search Group at Bing, Microsoft. WA, USA.

Jun 2018 – Aug 2018 **Research Intern,** Twitter Cortex (ML group) at Twitter. CA, USA.

Aug 2015 – Dec 2016 **Graduate Teaching Assistant,** Dept. of Computer Science, Purdue University.

Nov 2013 – Jul 2015 **Data Scientist,** Predictvia. Caracas, Venezuela.

Sep 2011 – Jul 2012 **Visiting Student Researcher,** Knowledge Systems Lab, Information and Management Systems Eng. Dept., Nagaoka University of Technology. Niigata, Japan.

Publications (* Indicates co-first authorship. The fields I publish in are conference-driven.)

Journal Articles, Conference and Workshop Proceedings

1. **Pacheco**, **M. L.**, von Hippel, M., Weintraub, B., Goldwasser, D., & Nita-Rotaru, C. (2022). Automated attack synthesis by extracting finite state machines from protocol specification documents. In *43rd IEEE symposium on security and privacy, SP 2022*. (to appear).

2. Roy, S., **Pacheco**, **M. L.**, & Goldwasser, D. (2021). Identifying morality frames in political tweets using relational learning. In *Proceedings of the 2021 conference on empirical methods in natural language processing, EMNLP 2021* (pp. 9939–9958). Retrieved from https://aclanthology.org/2021.emnlp-main.783

3. Lee, I.-T., **Pacheco**, **M. L.**, & Goldwasser, D. (2021). Modeling human mental states with an entity-based narrative graph. In *Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, NAACL-HLT 2021* (pp. 4916–4926). Retrieved from https://www.aclweb.org/anthology/2021.naacl-main.391

4. Widmoser, M. *., **Pacheco, M. L. ***, Honorio, J., & Goldwasser, D. (2021). Randomized deep structured prediction for discourse-level processing. In *Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: Main volume, EACL 2021* (pp. 1174–1184). Retrieved from https://www.aclweb.org/anthology/2021.eacl-main.100

5. **Pacheco**, **M. L.**, & Goldwasser, D. (2021). Modeling content and context with deep relational learning. *Transactions of the Association for Computational Linguistics*, *9*, 100–119. Presented at NAACL-HLT 2021. doi:10.1162/tacl_a_00357

6. Lee, I.-T., **Pacheco**, **M. L.**, & Goldwasser, D. (2020). Weakly-supervised modeling of contextualized event embedding for discourse relations. In *Findings of the Association for Computational Linguistics: EMNLP 2020* (pp. 4962–4972). doi:10.18653/v1/2020.findings-emnlp.446

7. Jain, A., **Pacheco**, **M. L.**, Lancette, S., Goindani, M., & Goldwasser, D. (2020). Identifying collaborative conversations using latent discourse behaviors. In *Proceedings of the 21th annual meeting of the Special Interest Group on Discourse and Dialogue, SIGDIAL 2020* (pp. 74–78). Retrieved from https://www.aclweb.org/anthology/2020.sigdial-1.10

8. Jero, S., **Pacheco**, **M. L.**, Goldwasser, D., & Nita-Rotaru, C. (2019). Leveraging textual specifications for grammar-based fuzzing of network protocols. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, pp. 9478–9483). doi:10.1609/aaai.v33i01.33019478

9. Lee, I.-T., Goindani, M., Li, C., Jin, D., Johnson, K. M., Zhang, X., … Goldwasser, D. (2017). PurdueNLP at SemEval-2017 task 1: Predicting semantic textual similarity with paraphrase and event embeddings. In *Proceedings of the 11th international workshop on Semantic Evaluation (SemEval-2017)* (pp. 198–202). doi:10.18653/v1/S17-2029

10. Zhang, X. *., **Pacheco, M. L. ***, Li, C., & Goldwasser, D. (2016). Introducing DRAIL – a step towards declarative deep relational learning. In *Proceedings of the workshop on Structured Prediction for NLP* (pp. 54–62). doi:10.18653/v1/W16-5906

11. **Pacheco**, **M. L.**, Lee, I.-T., Zhang, X., Zehady, A. K., Daga, P., Jin, D., … Goldwasser, D. (2016). Adapting event embedding for implicit discourse relation recognition. In *Proceedings of the CoNLL-16 shared task* (pp. 136–142). doi:10.18653/v1/K16-2019

Refereed Workshops without Published Proceedings

1. **Pacheco**, **M. L.**, & Goldwasser, D. (2020). Neural-symbolic modeling for natural language discourse. *ICML 2020 workshop on Bridge Between Perception and Reasoning*. Retrieved from https://logicalreasoninggnn.github.io/papers/16.pdf

2. Widmoser, M. *., **Pacheco, M. L. ***, Honorio, J., & Goldwasser, D. (2020). Randomized deep structured prediction for argumentation mining. *EMNLP 2020 workshop on Structured Prediction for NLP*.

3. **Pacheco**, **M. L.**, Dalal, I., & Goldwasser, D. (2018). Leveraging representation and inference through deep relational learning. *NeurIPS 2018 workshop on Relational Representation Learning*. Retrieved from https://r2learning.github.io/assets/papers/CameraReadySubmission%2042.pdf

Invited Talks, Tutorials, Seminars and Symposia

- **NS4NLP: Neural-Symbolic Methods for NLP.** Incoming tutorial at the 29th International Conference in Computational Linguistics, COLING-22 (Oct., 2021) taught with Sean Welleck, Dan Goldwasser, Vivek Srikumar, Yejin Choi and Dan Roth.
- **Neural-Symbolic Modeling, Learning and Reasoning for Natural Language Discourse.** Microsoft Research (Nov 29, 2021)
- **Reasoning About Entities and Events with Narrative Graphs.** University of North Carolina at Chapel Hill (Oct. 2, 2021)
- **NS4NLP: Neural-Symbolic Modeling for NLP.** Tutorial at the 30th International Joint Conference on Artificial Intelligence, IJCAI-21 (Aug. 20, 2021) taught with Dan Goldwasser.
- **Neural-Symbolic Modeling for Natural Language Discourse.** Microsoft Research (Jun. 17, 2021), 1st annual retreat, Purdue Center for Programming Principles and Software Systems (Aug. 31, 2020)
- **Modeling Content and Context with Deep Relational Learning.** Boston Computation Club (June 13, 2021), Orlando Machine Learning and Data Science Meetup (March 20, 2021)
- **Structured Prediction @ PurdueNLP.** CS Student Research Showcase, Purdue Univ. (Sep. 8, 2017)
- **DRaiL: Towards Declarative Deep Relational Learning.** Midwest Speech and Language Days / Computational Linguistics Colloquium, Toyota Technological Institute at Chicago (May 4-5, 2017)
- **Improving Protocol Vulnerability Discovery via Semantic Interpretation of Textual Specifications.** The 18th Annual CERIAS Security Symposium, Purdue University (Apr. 18-19, 2017)

Invited Talks, Tutorials, Seminars and Symposia (continued)

- **Adapting Event Embeddings for Implicit Discourse Relation Recognition.** CS Student Research Showcase, Purdue University (Sep. 12, 2016)
- **Event Embeddings for Implicit Discourse Relations.** Universidad Simon Bolivar, Caracas, Venezuela (May 17, 2016)

Teaching Experience

Purdue University

- **Instructor.** Problem Solving and Object Oriented Programming (2 semesters). Taught lectures of 50-100+ students, developed assignments and exams, and managed a team of 20+ graduate and undergraduate TAs.
- **Teaching Assistant.** Problem Solving and Object Oriented Programming (2 semesters). Guided lab sections of 10-20 students, held office hours, developed and graded assignments.

Awards and Scholarships

- **2021 Microsoft Research Dissertation Grant.** $25,000 towards dissertation expenses.
- **2017 Teaching Academy Graduate Teaching Award.** Selected by the CS Dept. at Purdue.
- **2011-2012 JASSO Student Exchange Support Program.** Scholarship for short-term study in Japan.

Academic and Institutional Service

Reviewing

- AAAI 2021, NAACL 2021, ACL 2021, EMNLP 2021, ACM Computing Surveys, ACL Rolling Review

Organizing

- **Co-Chair**, NAACL 2022 Student Research Workshop
- **Social Media Co-Chair**, SIGDIAL 2021

Diversity & Inclusion

- **Leadership Team**, Purdue Women in Science Programs (2021 - 2022)
- **Board Member (Diversity)**, Purdue CS Graduate Student Board (2021 - 2022)
- **Diversity Chair**, Purdue CS Graduate Student Board (2020 - 2021)
- **Committee Member**, Purdue CS Dept. DEI Committee (2020 - 2022)
- **Global Ambassador**, Purdue Graduate School (2018 - 2022)

Skills

Languages

- Spanish (Native), English (Fluent), Japanese (N3), German (A2).

Coding

- Python, Java, C, C++, R, Matlab, Git, SQL, LaTeX, …