Renato Negrinho

CONTACT INFORMATION

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RESEARCH INTERESTS

Architecture Search, Imitation Learning, Structured Prediction, Optimization

EDUCATION

Carnegie Mellon University, Pittsburgh, United States

Ph.D., Machine Learning, 2021 (Expected)

- Focused on architecture search, imitation learning, and structured prediction.
- Advisors: Geoff Gordon, Matt Gormley

Instituto Superior Técnico, Lisbon, Portugal

M.Sc., Electrical and Computer Engineering, 2013

- Master's Thesis: "Shape Representation Via Symmetric Polynomials: a Complete Invariant Inspired by the Bispectrum"
- Advisor: Pedro M. Q. Aguiar
- Grade: 20 (out of 20)

B.Sc., Electrical and Computer Engineering, 2011

RESEARCH/WORK EXPERIENCE

Microsoft Research, Redmond, United States — June 2018 – September 2018
Research Intern

Research internship at Microsoft Research hosted by Ben Zorn and Alex Polozov. Developed deep learning methods to detect bugs on spreadsheets. These models can be trained using naturally occurring supervision in a large corpus of spreadsheets.

Petuum, Pittsburgh, United States — February 2018 – May 2018
Research Scientist Intern

Part-time research scientist at Petuum working on developing new architecture search algorithms and integrating architecture search capabilities in Petuum's platform.

Microsoft Research, Redmond, United States — May 2016 – September 2016
Research Intern

Research internship at Microsoft Research hosted by Asela Gunawardana. We explored ways of improving user experience in WordFlow by developing machine learning models that trigger based on context. Our work can be broadly thought as machine learning for user interaction.

Xerox Research Centre Europe, Grenoble, France — May 2015 – September 2015
Research Intern

Research internship at XRCE hosted by Ariadna Quattoni and Xavier Carreras. Our work focused on the scalability of spectral methods for weighted finite automata. We used matrix sketching and count sketching algorithms. We proposed optimization-based learning approaches and a trie-based Hankel matrix representation.

Carnegie Mellon University, Pittsburgh, United States — February 2015 – April 2015
Research Intern

Three-month CMU-Portugal program internship working hosted by Noah Smith. Our work focused on finding effective methods of dealing with multiword expressions. We considered a semi-supervised learning approach using a variant of the latent CRF autoencoder model.

Instituto Superior Técnico, Lisbon, Portugal January 2014 – December 2014
Research Scholar

FCT research scholarship to work on machine learning and natural language processing under the supervision of André Martins. We studied regularized estimation problem, where we proposed a new framework where known model symmetries can be taken into account through the regularizer. We also worked on cross-lingual transfer for text classification.

Instituto Superior Técnico, Lisbon, Portugal July 2012 – December 2012
Research Scholar

FCT scholarship to work on distributed optimization and online optimization under the supervision of João Xavier.

Publications

1. Renato Negrinho, Matt Gormley, Geoff Gordon *An Empirical Investigation of Beam-Aware Training in Supertagging.* EMNLP Findings 2020.
2. Lourenco Pato, Renato Negrinho, Pedro Aguiar *Seeing without Looking: Contextual Rescoring of Object Detections for AP Maximization.* CVPR 2020.
3. Renato Negrinho, Darshan Patil, Nghia Le, Daniel Ferreira, Matthew Gormley, Geoffrey Gordon *Towards Modular and Programmable Architecture Search.* NeurIPS 2019.
4. Renato Negrinho, Matt Gormley, Geoff Gordon. *Learning Beam Search Policies via Imitation Learning.* NeurIPS 2018.
5. Renato Negrinho and Geoff Gordon. *DeepArchitect: Automatically Designing and Training Deep Architectures.* arXiv:1704.08792.
6. Han Zhao, Otilia Strectu, Renato Negrinho, Alex Smola, and Geoff Gordon. *Efficient Multi-task Feature and Relationship Learning.* arXiv:1702.04423.
7. Renato Negrinho and André F. T. Martins. *Orbit Regularization.* NeurIPS 2014.
8. Renato Negrinho and Pedro M. Q. Aguiar. *Symmetric Polynomials for 2D Shape Representation.* ICIP 2014.
9. Renato Negrinho and Pedro M. Q. Aguiar. *Shape representation Via Elementary Symmetric Polynomials: a Complete Invariant Inspired by the Bispectrum.* ICIP 2013.

Teaching Experience

- Lab monitor at Lisbon Machine Learning Summer School 2017 (LxMLS 2017). July 20–27, 2017.
- Teaching Assistant for 10-703 Deep Reinforcement Learning and Control at Carnegie Mellon University. Spring 2017.
- Teaching Assistant for 10-601 Machine Learning at Carnegie Mellon University. Fall 2016.
- Lab monitor at Lisbon Machine Learning Summer School 2015 (LxMLS 2015). July 15–23, 2015.
- Lab monitor at Lisbon Machine Learning Summer School 2014 (LxMLS 2014). July 22–29, 2014.

Coursework at Carnegie Mellon University

- 10-705 Intermediate Statistics
- 10-716 Advanced Machine Learning
- 10-708 Probabilistic Graphical Models
- 10-725 Convex Optimization
- 10-807 Topics in Deep Learning
- 15-859N Spectral Graph Theory

Other Relevant Experience and Information

- Mentoring (January 2018–January 2019) CMU CS undergraduate students (Darshan Patil, Kirielle Singajarah, Max Le, and Zejie Ai) to develop an open-source architecture search framework for deep learning. Framework released recently (available at `https://github.com/negrinho/deep_architect`) and paper accepted at NeurIPS 2019. Both Darshan Patil and Max Le will apply to PhD programs.
- Supervising (September 2018–September 2019) Master thesis work for Lourenco Vaz Pato (5th year ECE IST student). Work resulted in an accepted submission to CVPR 2020. Currently a Machine Learning Engineer at Cleverly.
- Reviewer for JMLR, TPAMI, ICML 2019, NeurIPS 2019, NeurIPS 2020, and AAAI 2020.
- Served in the admissions committee for the Machine Learning PhD Program at Carnegie Mellon University for the incoming class of 2018 and 2020.
- Mentioned in the New York Times article "Building A.I. That Can Build A.I." [1] for our work on automatic architecture search.
- Invited for the panel "Electro around the world" (JEEC 2019) to talk about my professional experience as a Portuguese expat and ECE alumni of Instituto Superior Tecnico. Travel expenses covered by the event organization. March 12, 2019.
- Student volunteer at Neural Information Processing Systems (NeurIPS) 2014. December 8–13, 2014.
- Attended Lisbon Machine Learning Summer School 2013 (LxMLS 2013). Registration fee covered by a Priberam Scholarship. July 24–31, 2013.
- Achieved a GRE score of 325 out 340: quantitative: 165 out of 170 (90 percentile); verbal: 160 out of 170 (84 percentile). May 5, 2014.
- Achieved scores of 118 out 120 in the TOEFL exam (98+ percentile). 30 out 30 in the listening and speaking parts and 29 out of 30 in the reading and writing parts. June 14, 2014.
- Completed Coursera courses: Programming Languages, Functional Programming Principles in Scala, Economics of Money and Banking (Part One), Economics of Money and Banking (Part Two), The Power of Macroeconomics, The Power of Microeconomics.

Programming Languages

Python, Tensorflow, PyTorch, C, Matlab, Java, Scala, LaTex, Git.

[1] `https://www.nytimes.com/2017/11/05/technology/machine-learning-artificial-intelligence-ai.html`