Ricardo Bigolin Lanfredi

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EDUCATION

PhD in Electrical and Computer Engineering August 2017 - August 2022
University of Utah - Salt Lake City, UT
Advisor: Tolga Tasdizen - GPA: 4.0/4.0

Master in Engineering September 2012 - February 2016
CentraleSupélec - Châtenay-Malabry, France
Awarded with Eiffel Excellence Scholarship - GPA: 4.16/4.33

BS in Electrical Engineering March 2010 - January 2016
Universidade Federal do Rio Grande do Sul (UFRGS) - Porto Alegre, Brazil
Graduated with honors - GPA: 10/10

RESEARCH EXPERIENCE

Graduate Assistant January 2018 - Present
Scientific Computing and Imaging Institute at the University of Utah
- Working with Computer Vision / Deep Learning on radiological images

Applied Scientist Intern May 2019 - August 2019
AWS Rekognition at Amazon

Research Intern August 2014 - January 2015
GE Healthcare - Buc, France
- Modeled a medical X-ray system for simulation, using physics and signal processing

Research Assistant February 2011 - June 2012
Applied Mathematics Department - UFRGS
- Optimized and implemented new algorithms in C++, for visualization and numerical calculation of structural properties of porous structures.

TEACHING EXPERIENCE

Teaching Assistant
Department of Electrical and Computer Engineering at the University of Utah

Deep Learning for Image Analysis January 2019 - May 2019
- Created and graded assignments and gave a few lectures for 40 students

Electrical Eng. for Nonmajors August 2018 - December 2018
- Instructed 60 students in laboratory sessions

PROFESSIONAL EXPERIENCE

Data Analyst March 2016 - July 2017
Lojas Quero-Quero - Cachoeirinha, Brazil
- Supported the purchase division of the retail company and developed, in a team, an internal web application (full stack) for storing prices from competitors

SKILLS

Languages: English (fluent), French (fluent), Portuguese (native)

Programming: **Most experienced**: Python, PyTorch, TensorFlow, MATLAB
Some experience: C / C++, PostgreSQL
Slight experience: HTML, CSS, Bootstrap, PHP, JavaScript, Java

Interests: Research, Computer Vision, Medical Image Analysis, Deep Learning, Model Interpretability, Adversarial Robustness

HONORS AND AWARDS

Graduate Student Travel Assistance Award October 2019
- Awarded by University of Utah Graduate School.

MICCAI 2019 Graduate Student Travel Award October 2019
- Award to outstanding graduate student authors for subsidizing their attendance to present their papers at MICCAI 2019.

Magna Cum Laude (Latin Honor - Láurea Acadêmica) - UFRGS January 2016
- Prize for academic excellence, after obtaining 100% A grades during studies.

3rd place in Innovation Prize 2014 - CentraleSupélec June 2014
- For the robotics team project CHAR++, among more than 100 projects.

Eiffel Excellence Scholarship - Campus France July 2012 - June 2014
- Scholarship for top international students during their master's and PhD courses.

PUBLICATIONS

Conferences:

R B Lanfredi, J Schroeder, C Vachet, T Tasdizen. *Interpretation of Disease Evidence for Medical Images Using Adversarial Deformation Fields.* Early acceptance for the main conference at **MICCAI 2020**.

R B Lanfredi, J Schroeder, C Vachet, T Tasdizen. *Adversarial regression training for visualizing the progression of chronic obstructive pulmonary disease with chest x-rays.* Early acceptance for the main conference at **MICCAI 2019**.

M Javanmardi, R B Lanfredi, M Cetin, T Tasdizen. *Image Segmentation by Deep Learning of Disjunctive Normal Shape Model Shape Representation.* **DiffCVML (CVPR Workshop) 2018**. Presented by Lanfredi, R B.

Journals:

W L Roque, K Arcaro, R B Lanfredi. *Trabecular network tortuosity and connectivity of distal radius from microtomographic images.* Published in Portuguese. **Brazilian Journal of Biomedical Engineering**, v. 28, Issue 2. 2012.

Abstracts:

J Schroeder, R B Lanfredi, T Li, J Chan, C Vachet, R Paine, V Srikumar, T Tasdizen. *Early identification of risk for lung cancer: Deep learning to predict COPD from chest radiographs using pulmonary function test annotation.* **Early Detection of Cancer Conference**, 2019

J Chan, R B Lanfredi, T Tasdizen, V Srikumar, J Schroeder. *Using Deep Learning to Predict Severity of Restrictive Pulmonary Function From Chest Radiographs of Patients With Interstitial Lung Disease.* **ARRS 2019 Annual Meeting and Scientific Program**. Awarded with ARRS Magna Cum Laude for best in subspecialty.

In preparation /submitted:

R B Lanfredi, J Schroeder, T Tasdizen. *Quantifying the Preferential Direction of the Model Gradient in Adversarial Training With Projected Gradient Descent.* Submitted to NeurIPS 2020.

J Schroeder, R B Lanfredi, T Li, J Chan, C Vachet, R Paine, V Srikumar, T Tasdizen. *Predicting Obstructive Lung Disease from Chest Radiographs via Deep Learning using Pulmonary Function Test Annotation: Comparison to Radiologist Text Reports.*