

Tiago Salvador

Nationality: Portuguese · Immigration Status: Green Card (Expected October 2022)

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Experience

Mila Quebec AI Institute & McGill University

Montreal, QC

POST-DOCTORAL RESEARCHER (Mentor: Dr. Adam Oberman)

September 2020 - Present

- Conducting research in deep learning focusing on domain adaptation and out-of-distribution problems. Experience writing research papers for publication, presenting work at 2 conferences, organizing meetings, mentoring 4 graduate students and assisting with grant applications.

University of Michigan - Department of Mathematics

Ann Arbor, MI

POST-DOCTORAL ASSISTANT PROFESSOR (Mentor: Dr. Selim Esedoglu)

September 2017 - August 2020

- Conducted research in numerical analysis focusing on threshold dynamics algorithms which are ideal for large scale simulations of grain growth. Wrote research articles for publication and presented work at 4 conferences and 3 seminars.
- Taught undergraduate mathematics courses. Designed and delivered lectures, facilitated group work, and wrote homework assignments and exams. Courses included multivariable and vector calculus, linear algebra, differential equations and numerical analysis. Received a student *Honored Instructor Nomination* that recognizes the teaching efforts of instructors who had a positive impact on their experience.

Skills

Programming Languages: Python, Matlab, Mathematica, SQL.

Operating Systems, Tools: Linux, Jupyter notebook, Git.

Libraries: NumPy, Sci-Py, Pandas, Matplotlib, scikit-learn, BeautifulSoup, PyTorch.

Publications & Preprints (selected)

T. SALVADOR AND A. M. OBERMAN. *ImageNet-Cartoon and ImageNet-Drawing: two domain shift datasets for ImageNet*. *ICML Shift Happens Workshop 2022*

We propose two new datasets, using data augmentation, to measure model robustness to dataset shift.

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T. SALVADOR, S. CAIRNS, V. VOLETI, N. MARSHALL, AND A. M. OBERMAN. *FairCal: Fairness Calibration for Face Verification*. *ICLR 2022*

We remove bias from face recognition models leveraging unsupervised clustering to bypass the need for sensitive attribute (such as race, ethnicity, etc). We improve different fairness metrics while increasing accuracy and without any additional training.

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T. SALVADOR, V. VOLETI, A. IANNANTUONO AND A. M. OBERMAN. *Frustratingly Easy Uncertainty Estimation for Distribution Shift* *arXiv preprint* 2021.

We propose two simple post-hoc calibration methods that leverage data augmentation to improve calibration in the presence of distribution shift (unsupervised domain adaptation and domain generalization) for deep neural networks.

Projects

SOCCER PREDICTIONS (GITHUB.COM/TIAGOSALVADOR/SOCCER-PREDICTIONS)

Web scrapped Premier League data from Transfermarkt and Football-Data.co.uk and built forecaster models to predict soccer games.

CALIBRATION BASELINES (GITHUB.COM/TIAGOSALVADOR/CALIBRATION-BASELINES)

Implemented and benchmarked several state-of-the-art post hoc calibration methods using Python and Pytorch.

BUILDING AGENTS TO PLAY CONNECT4 (GITHUB.COM/TIAGOSALVADOR/CONNECT4)

Created a framework to play Connect4. Implemented baseline agents with simple heuristics (e.g. play a winning move if one is available).

Implemented minmax agent with alpha-beta pruning. Implemented a Deep Q-Network that learns how to play Connect 4 by self-play.

Presentations (selected)

- Threshold dynamics algorithms for curvature motion of networks of surfaces*

Chicago, IL

Math Colloquium at Loyola University

Jan 2020

- Γ -convergence of threshold dynamics algorithms*

Phoenix, AZ

MRS Spring Meeting: Symposium on Mathematical Aspects of Materials Science-Modeling, Analysis and Computations

April 2019

- Algorithms for fully anisotropic, continuum models of grain boundary motion*

Portland, OR

SIAM Conference on Mathematical Aspects of Materials Science

July 2018

Education

McGill University

Montreal, QC

PH.D. IN APPLIED MATHEMATICS

2012-2017

Instituto Superior Técnico, Universidade de Lisboa

Lisbon, Portugal

M.SC IN MATHEMATICS AND APPLICATIONS

2010-2012

B.SC IN APPLIED MATHEMATICS AND COMPUTATION

2007-2010

Coursera

APPLIED DATA SCIENCE SPECIALIZATION - UNIVERSITY OF MICHIGAN

Summer 2020

DEEP LEARNING SPECIALIZATION - DEEPLARNING.AI

Summer 2020

REINFORCEMENT LEARNING SPECIALIZATION - UNIVERSITY OF ALBERTA

Summer 2020