JUAN PABLO ZULUAGA

Ph.D. Student in Computer Science & Automatic Speech Recognition

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EXPERIENCE

Ph.D. Student in Automatic Speech Recognition
Idiap & EPFL

January 2020 – Ongoing | Martigny, Switzerland

- Automatic Speech Recognition for air traffic control: ATCO2 EU-H2020
- Implemented innovative semi-supervised techniques for ASR in air-traffic control (low resource and challenging task)
- Led the integration of NLP techniques. 50% improvement in named-entity recognition from ASR (breakthrough)
- Participated at several venues: INTERSPEECH, ICASSP, OpenSky Network Symposium (6 conference papers)
- Implemented a streaming ASR system for air traffic control communications: collaboration with industrial partners

Computer Vision Intern
École nationale supérieure de mécanique et des microtechniques

Jan 2019 – Nov 2019 | Besançon, France

- Developed a system for breast cancer diagnosis with infrared images
- Early research in multi-modal techniques (vision & signal) for breast cancer diagnosis
- Published two papers in highly ranked journals
- Master Thesis: Breast Cancer Diagnosis Using Machine Learning

PUBLICATIONS

Shortlisted Journal and Conference Articles (out of 16). h-index: 7.

Journal Articles

- **Zuluaga-Gomez, Juan**, Vesely, K., Szöke, I., Motlicek, P., et al. (2022). Atco2 corpus: A large-scale dataset for research on automatic speech recognition and natural language understanding of air traffic control communications. *Under review at Computer Speech & Language, arXiv preprint arXiv:2211.04054*.
- Zhan, Q., Xie, X., Hu, C., **Zuluaga-Gomez, Juan**, et al. (2021). Domain-Adversarial Based Model with Phonological Knowledge for Cross-Lingual Speech Recognition. *Electronics*, *10*(24), 3172.
- **Zuluaga-Gomez, Juan** et al. (2021). A CNN-based methodology for breast cancer diagnosis using thermal images. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, *9*(2).

Conference Proceedings

- Nigmatulina, I., **Zuluaga-Gomez, Juan** et al. (2022). A two-step approach to leverage contextual data: speech recognition in air-traffic communications. In *Proc. ICASSP 2022*.
- **Zuluaga-Gomez, Juan**, Prasad, A., Nigmatulina, I., et al. (2022). How Does Pre-trained Wav2Vec 2.0 Perform on Domain Shifted ASR? An Extensive Benchmark on Air Traffic Control Communications. In *2022 IEEE Spoken Language Technology Workshop (SLT), Doha, Qatar*.

EDUCATION

Ph.D. in Computer Science
École Polytechnique Fédérale de Lausanne

Jan 2020 – Ongoing

M.Sc. in Mechatronics Engineering
University of Oviedo & ENSMM

Sept 2017 – Sept 2019

B.Sc. in Mechatronics Engineering
Universidad Autonoma del Caribe

Jan 2011 – Dec 2015

STRENGTHS & SKILLS

Hard-working | Problem-Solving | Self-Management & Teamwork

Python | Pytorch | Kaldi | W&B | Git | ASR | NLP | HuggingFace | Speechbrain

LANGUAGES

Spanish	Native
English	Bilingual Proficiency
French	Limited Working Proficiency

MOST PROUD OF

Teamwork
proposing common ground where ideas from different fields can grow

Persistence
despite the challenge of low-resource ASR, I showed that creativity always pays off

LIFE PHILOSOPHY

"Discovery consists of looking at the same thing as everyone else and thinking something different." *Albert Szent-Györgyi*

HOBBIES

Cooking | Hiking | Reading | Traveling | Coffee Brewing