

JUAN PABLO ZULUAGA

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

@juan-pablo.zuluaga@idiap.ch
juan-pablo-zuluaga-gomez-co

Lausanne, Switzerland
JuanPZuluaga

juanpzuluaga.github.io
Juan-Pablo-Zuluaga

@PabloGomez3



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

- 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).
- Zuluaga-Gomez, J et al. (2019). A survey of breast cancer screening techniques: thermography and electrical impedance tomography. *Journal of medical engineering & technology*, 43(5).

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