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

- 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. (2021a). 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** et al. (2021b). Contextual Semi-Supervised Learning: An Approach to Leverage Air-Surveillance and Untranscribed ATC Data in ASR Systems. In *Proc. interspeech 2021*.

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 Bash 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