Recommendation for the defense of Ph.D. thesis

Ph.D. candidate: Federico Nicolás Landini
advisors: Lukáš Burget and Mireia Diez Sánchez

We are happy that Federico has finished his thesis under our co-supervision and that his long-years efforts have converged to the submission of doctoral dissertation at FIT.

The thesis is at the intersection of speech processing and machine learning and deals with the important problem of speech diarization (segmentation and labeling of a 1-channel recording) that can serve for speech data mining "as is" but its foremost usage is as a pre-processing block for other speech tasks.

Federico excelled in all aspects of scientific work, from the detection and exploration of new research paths, through careful experimentation, coding and experimental setup to publications. His publication track is impressive - he has Google Scholar h-index 10, and his Computer Speech and Language paper "Bayesian HMM clustering of x-vector sequences (VBx) in speaker diarization: theory, implementation and analysis on standard tasks" has attracted already 171 citations despite being published only in 2021. This paper is still listed in CSL top-cited papers.

Federico worked on a number of projects including ROZKAZ supported by the Czech Ministry of Interior and several industrial cooperations (Omilia, Ericsson and NTT). During his PhD, he took part in several industrial internships - in Apple, and Meta.

His most significant contribution is as a developer and maintainer of the Variational Bayes x-vector (VBx) diarization system, which scored excellently in international evaluations (VoxCeleb and two editions of DIHARD). This achievement brought us significant visibility due to the early publication of papers and code, which has been and still is maintained in excellent order by Federico. Moreover, it was turned into a product by our spin-off company, Phonexia. In addition to his contributions to designing diarization systems, he has always been thorough in the proper and fair composition of datasets and scoring, ensuring that the results produced are truly comparable. These efforts have been widely recognized by the international community. The community service was also recognized by acting as a reviewer - he obtained the Best Reviewer Award for ASRU 2023 - an achievement rarely seen for such a young researcher.

He was also active pedagogically - he taught labs of Signals and Systems (Bc), corrected projects and exams, but he was mainly helpful within the group by providing newcomers in the lab with instructions on tools, data, diarization systems, SGE computing and many others. He has also maintained the group's LinkedIn and GitHub accounts and never missed an opportunity to spread the word about the group in all possible PR channels.

From a personal point of view, we appreciate Federico's perseverance, experimental skills, sense of team-work, fairness in evaluation and presenting the results, organization, and good will to make the lab a happy place to work.

To conclude, **we fully recommend Federico Nicolás Landini's Ph.D. thesis for defense**, wish him all the best in his professional and personal life, and look forward to being in touch with him in his future professional and personal life.

In Brno, February 20th 2024

Lukáš Burget, Ph.D., Associate Professor
Mireia Diez Sánchez, Ph.D., Senior Researcher

BUT Speech@FIT, Department of Computer Graphics and Multimedia
Faculty of Information Technology, Brno University of Technology
Božetěchova 2, 612 66 Brno, Czech Republic
mailto:burget@fit.vutbr.cz, http://www.fit.vutbr.cz/~burget,
mailto:mireia@fit.vutbr.cz, http://www.fit.vutbr.cz/~mireia