

Overview of the position

Automatic assessment of the fluency of young readers (H/F)

General information

- Title of the position: Automatic assessment of the fluency of young readers (H/F)
- Reference: Post-Doc Fluence/ELARGIR
- Work Location: GIPSA-Lab, Grenoble, France
- Publication date : 6/11/2018
- Supervisor : Gérard BAILLY, DR CNRS
- Type of the position: Post-Doc
- Duration: one-year contract renewable once
- Start date: 1/1/2019
- Work quota: 100%
- Wages: 2 500 € gross / month
- Section CNU : 61/27

Description of the Post-Doc work

An important characteristic of utterances produced by early readers is the prevalence of disfluencies, such as filled pauses, repetitions and false starts. The objective of the work is to detect these disfluencies and score their impact on perceived quality of reading using state of the art machine learning techniques. In the framework of the e-FRAN Fluence project (fluence.prod.lamp.cnrs.fr), we are collecting massive data of aloud readings by pupils.

The Post-Doc work consists in designing and implementing a multi-criteria scoring system that automatically estimates the reading quality of aloud readings of pupils from the speech signals they produce. The scoring system proposed by Timothy Rasinski rates several dimensions: precision, speed, phrasing and expressivity. The system should thus combine automatic speech recognition with automatic analysis of prosody. The recruited Postdoctoral Researcher will take a major role in advancing research in both topics. The position is strongly research-focused.

Position context

At the University of Grenoble-Alpes (www.univ-grenoble-alpes.fr/en), GIPSA-Lab (www.gipsa-lab.grenoble-inp.fr/en/home.php) is a large laboratory of 350 people. The CRISSP (Cognitive Robotics, Interactive Systems & Speech Processing) research group (www.gipsa-lab.grenoble-inp.fr/en/crissp/home-crissp.php) is a medium-sized team of 17 people with 8 permanent senior researchers. We are looking for a highly motivated researcher to work in the Fluence (fluence.prod.lamp.cnrs.fr) project, aiming at providing computer-assisted training of early readers at the primary school and disfluent readers at the secondary school.

Fluent reading is in fact a prerequisite for successful education. But mastering reading automaticity and on-line production of adequate phrasing and expressivity necessitates the acquisition and synchronization of multiple cognitive skills in vision, language and speech processing. The Fluence project aims at quantifying the impact of a computer-assisted training program on reading fluency.

We will be collecting dozen aloud readings of pre-selected texts uttered by 750 pupils and 300 middle schoolers in institutions of the Grenoble academy. These readings are currently subjectively

assessed for monitoring their progress through a set of pre-defined exercises. Readings collected in the classrooms via the Fluence app are automatically sent at the end of each training day on a research data server.

The recruited Postdoctoral researcher will be responsible for constructing a software suite that automatically processes the readings during the night and incrementally updates the indicators of progress to the teachers.

Constraints and risks

The read speech is in French. Good level of French proficiency is recommended.

We are seeking for a researcher with less than 5 years' experience after having obtained a PhD in the domain of automatic speech processing. The recruited Postdoctoral researcher will work in the framework of the Fluence project with specialists in education and cognitive sciences. The candidate should be thus able to work in a multidisciplinary team.

The CRISSP team has limited experience in state-of-the-art speech recognition but, since the text is known in advance, challenge of speech recognition mostly concerns here the adaptation of language models and word dictionaries to dysfluent entries. Specialists of speech recognition as well as automatic text processing can be found in the nearby research labs. CRISSP has a strong background in analysis and modelling of prosody.

This is one-year contract that can be renewable once according to the project's needs.