Maria de Maeztu PhD position

Title: PhD scholarship in *Forgetting How to See Language - Computational analysis and understanding of sign languages discrimination*

Abstract: Human infants are born with the ability to learn any language within a very limited time and with quite reduced cognitive capacities. To achieve this goal, infants already possess at birth some basic abilities that will significantly change over the first months of life. Such early capacities include not only discriminating any sound existing in any oral language of the world, but also to languages that are genuinely visual such as sign languages, even if their parents cannot produce (and perceive) the contrast. Such abilities will change over the first year of life, a phenomenon known as “Perceptual Narrowing”. Literature describes perceptual narrowing for the analogous to phoneme discrimination in sign languages: discrimination of handshape, movement, etc. There is also evidence that the capacity to discriminate between sign language and pantomime changes during the first months of life in hearing infants never exposed to sign language. Recently, researchers have shown that 8-month-old hearing infants, without any experience with any sign language, can discriminate between British Sign Language (BSL) and Japanese Sign Language (JSL). This discrimination starts to decline at 12 months of age and is totally absent in hearing adults. Only adults with extensive experience with American Sign Language (ASL) can discriminate between these languages (BSL and JSL are typologically unrelated between them and to ASL).

In this doctoral research, the candidate will investigate the underlying patterns of this forgetting in visual language discrimination. This interdisciplinary research is part of the ForHowSeeL project. By leveraging videos of British Sign Language (BSL) and Japanese Sign Language (JSL) and using computer vision and artificial intelligence methods, the goal is to identify the key visual features and discover low-level patterns in the visual data that infants in the early months of life are able to capture and use to discriminate between different sign languages. Both model-based and data-driven methods for visual data analysis and understanding will be exploited.

This research project will be co-supervised by Dr. Coloma Ballester (coloma.ballester@upf.edu, https://www.upf.edu/web/coloma-ballester), Dr. Josep Quer (josep.quer@upf.edu, https://www.icrea.cat/Web/ScientificStaff/Josep-Quer-Villanueva-131) and Dr Núria Sebastian (nuria.sebastian@upf.edu, https://www.upf.edu/web/sap/nuria-sebastian).

Open position for a predoctoral researcher:

This position includes a teaching commitment load of 45 hours per academic year.

Topic: Computational analysis and understanding of sign languages discrimination

Requirements: Master degree in computer vision, computer science, data science, artificial intelligence, computational neuroscience, neuroscience or similar. Alternative qualifications can be considered provided the candidate shows strong technological knowledge and appropriate linguistics and cognitive neuroscience background. Knowledge of sign languages or multimodal communication would be a plus. The ideal candidate should also have good programming skills, and good communication skills in English, both written and oral.

Admission in the PhD program of the Department of Information and Communication Technologies at UPF is a prerequisite to enjoy the contract.

Starting date (planned): Academic course 2023-24

Application deadline: Continuously open, until a suitable candidate is found

Gross yearly salary:

Basic salary 1680€/month per 12 months, to be increased in the 3rd and 4th year of the PhD, up to 2020€/month in the final year

This position is co-funded by the PhD fellowship program of the Department of Information and Communication Technologies at Universitat Pompeu Fabra (DTIC-UPF), and the María de Maeztu Strategic Research Programme at DTIC-UPF on Artificial and Natural Intelligence for ICT and beyond. Its benefits and conditions are available at: https://www.upf.edu/web/etic/predoctoral-research-contracts.

For application or further information, contact

If you are interested in this position please send (i) a motivation letter, (ii) (max) 4-page updated CV, and optionally (iii) names of referees (or reference letters) to:
Coloma Ballester, IMVA-group, coloma.ballester@upf.edu
Josep Quer josep.quer@upf.edu
Núria Sebastian nuria.sebastian@upf.edu

More information about the María de Maeztu Strategic Research Programme at DTIC-UPF on Artificial and Natural Intelligence for ICT and beyond: https://www.upf.edu/web/mdm-dtic .

Universitat Pompeu Fabra Barcelona
Departament de Tecnologies de la Informació i les Comunicacions
EXCELENCIA MARÍA DE MAEZTU

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