Master internship – robust co-learning with soft labels

Titre/Title	Co-learning integrating soft labels
Encadrant(s) / Supervisor(s)	Sébastien Destercke (main supervisor), Benjamin Quost.
Laboratoire/Laboratory	UMR Heudiasyc
Mots clés/Key words	Learning, Uncertainty, Collaboration
Descriptif du sujet/ Project description	The topics of self-supervised and collaborative learning are gaining increasing attention, as currently used models usually needs a lot of labelled data to perform well. The idea of collaborative learning is to let multiple classifiers feed each others with prediction, thus improving their performances and allowing for the emergence of better models. However, self-supervised or co-learning techniques typically departs from usual learning assumption (that is, having independent and identically distributed data). This means that such techniques may face strong biases, that need to be mitigated in order to avoid decreasing performances. One way to do so is to consider learning under uncertain labels, using the uncertainty quantification to lower the impact of uncertain prediction in the self-learning process. The goal of this internship is to investigate how modern learning techniques handling uncertain labels (such as the one developed within Heudiasyc laboratory, among others) can be used to improve and regularize co-learning approaches.
Possibilité de poursuite en thèse/ Possibility of continuing in PhD	Possible (no funding acquired yet).
Profil recherché/Sought profile	The applicant should have a strong background in computer science and/or mathematics, with ideally a specialization in machine learning and/or uncertainty modelling. The applicant should send the following items to sebastien.destercke@hds.utc.fr and benjamin.quost@hds.utc.fr: - A complete CV - Motivation letter - Reference letters or mail of reference persons - Other items the applicant may find relevant (papers, reports, …)