Supplementary for Longitudinal representation learning in continuous-time models to predict disease progression

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Method	Name	Value
BYOL based	Batch size	128
	MLP head dim	512
	Image size	256×256
	Neural ODE dim	512
	α	0.99
SimCLR based	Batch size	128
	MLP head dim	512
	Neural ODE dim	512
	Fixed δ_i	0,0125 (2 month equivalent)
	Image size	256×256
	τ	0.5
Fine-tuning	Image size	256
	Batch size	64
	Learning rate	0.001,0.0001,0.00001
	Weight decay	0.0001

Table 1: Presentation of the hyperparameter settings used for BYOL and SimCLR based NODE pre-training methods, along with the fine-tuning scenarios applied for both Task 1 and Task 2.

The images are first adaptively cropped to fit the width of the field of view (specifically, the eye region in the CPF image) and subsequently resized to 256x256 pixels. A Gaussian filter is used to estimate the background in each color channel, reducing the strong intensity variations in the dataset, which is then subtracted from the image. Finally, the field of view is eroded by 5% to remove illumination artifacts around the edges. During training, random resized crops with a scale range of [0.96, 1.0] and an aspect ratio range of [0.95, 1.05] are applied for data augmentation.

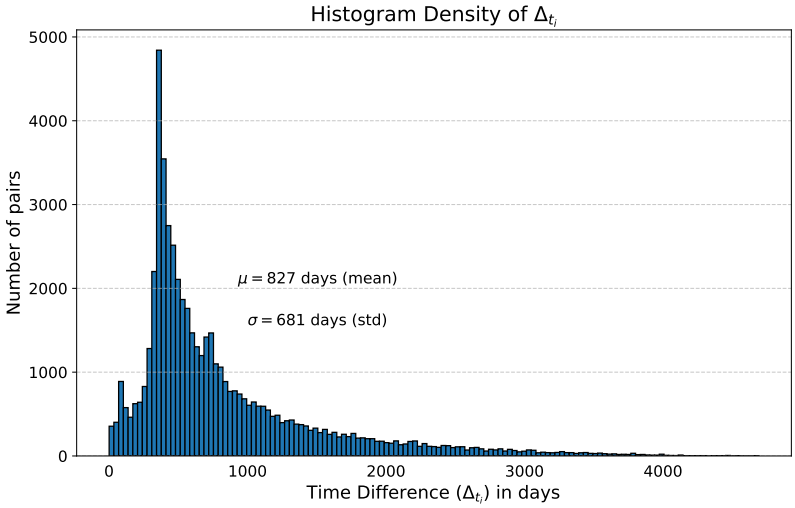

Fig. 1: Distribution of time differences (Δ_{t_i}) across the datasets used for Task 2 and pre-training. This histogram shows the frequency of each time difference value. The mean and standard deviation of Δ_{t_i} are also displayed.

	Task 1: Prediction of DR progression at an horizon of 3 years			Task 2: Prediction of DR at next available visits
	1 year prediction	2 year prediction	3 year prediction	Prediction at variable time
No apparent DR	62448	61153	60218	25184
Mild nonproliferative DR	10311	11380	11880	23928
Moderate nonproliferative DR	3577	3792	4205	7770
Severe NPDR	645	655	677	1056
Proliferative DR (PDR)	77	78	78	128

Table 2: This table details the distribution of samples and classes for Tasks 1 and 2. The data originates from the OPHDIAT dataset, with two distinct subdatasets being used for analysis.