

FixMatch: Simplifying Semi-Supervised Learning with Consistency and Confidence

Kihyuk Sohn, David Berthelot, Chun-Liang Li, Zizhao Zhang, Nicholas Carlini,
Ekin D. Cubuk, Alex Kurakin, Han Zhang, Colin Raffel

Google Research

21 Jan 2020

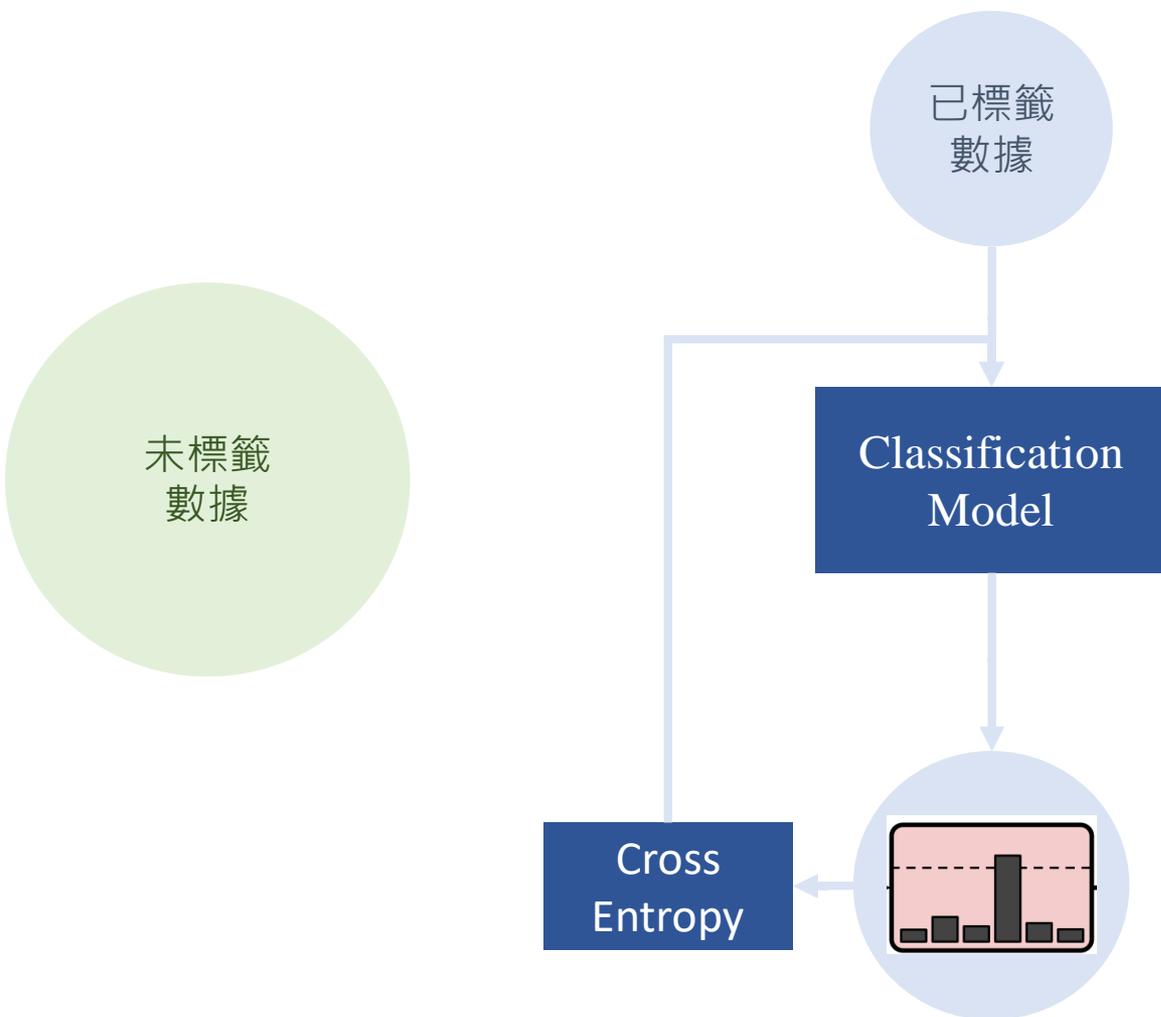
FixMatch



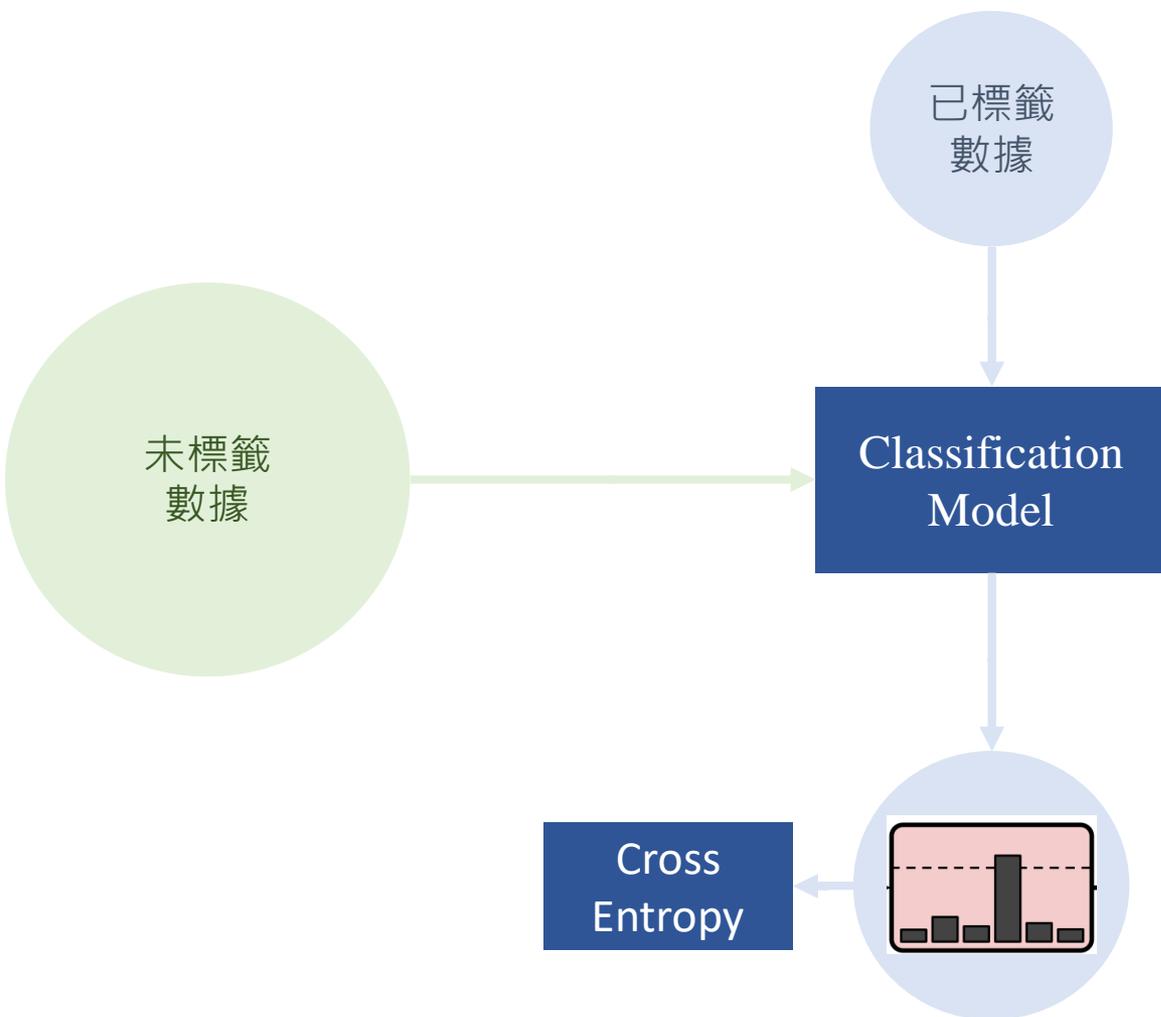
已標籤
數據

未標籤
數據

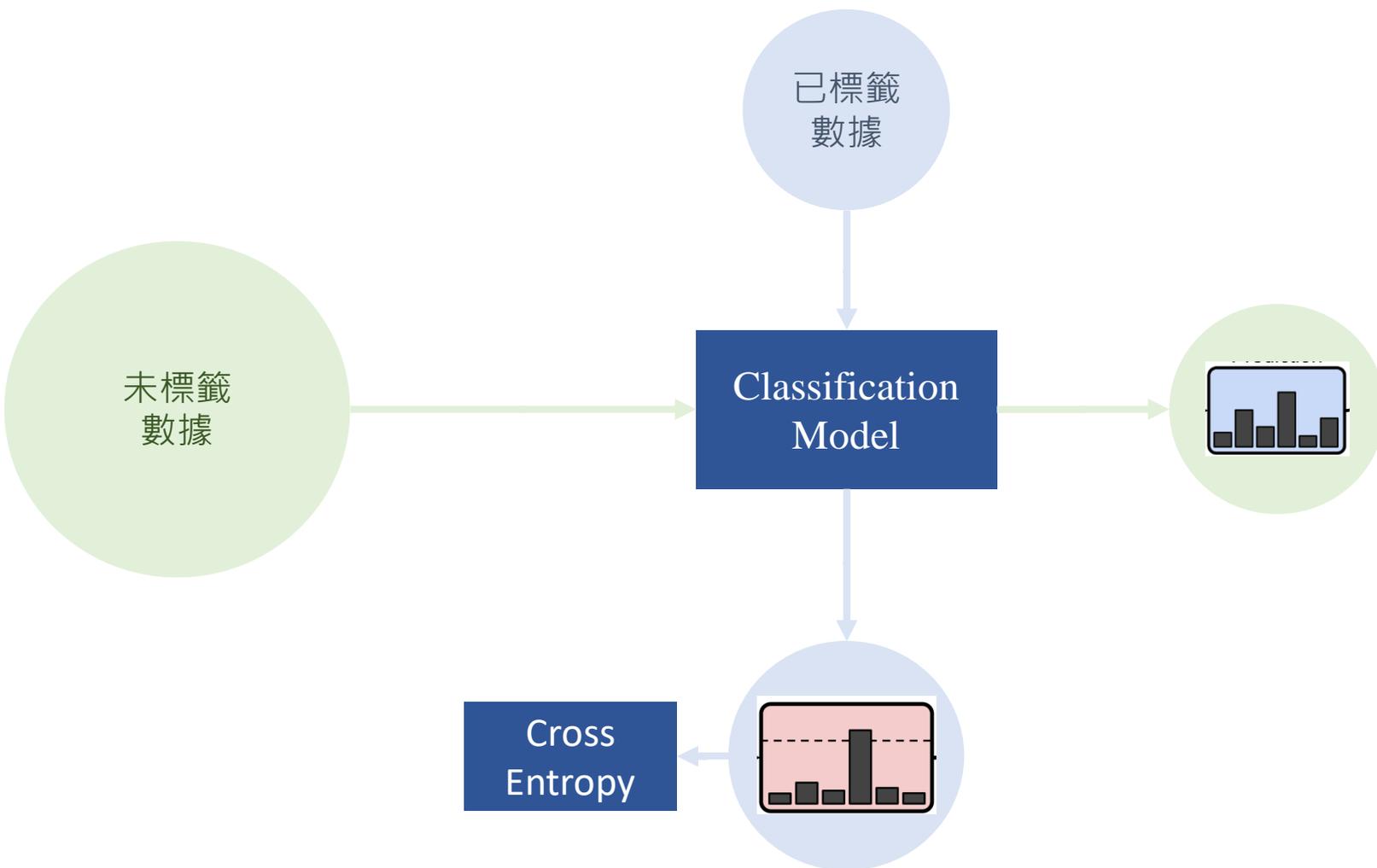
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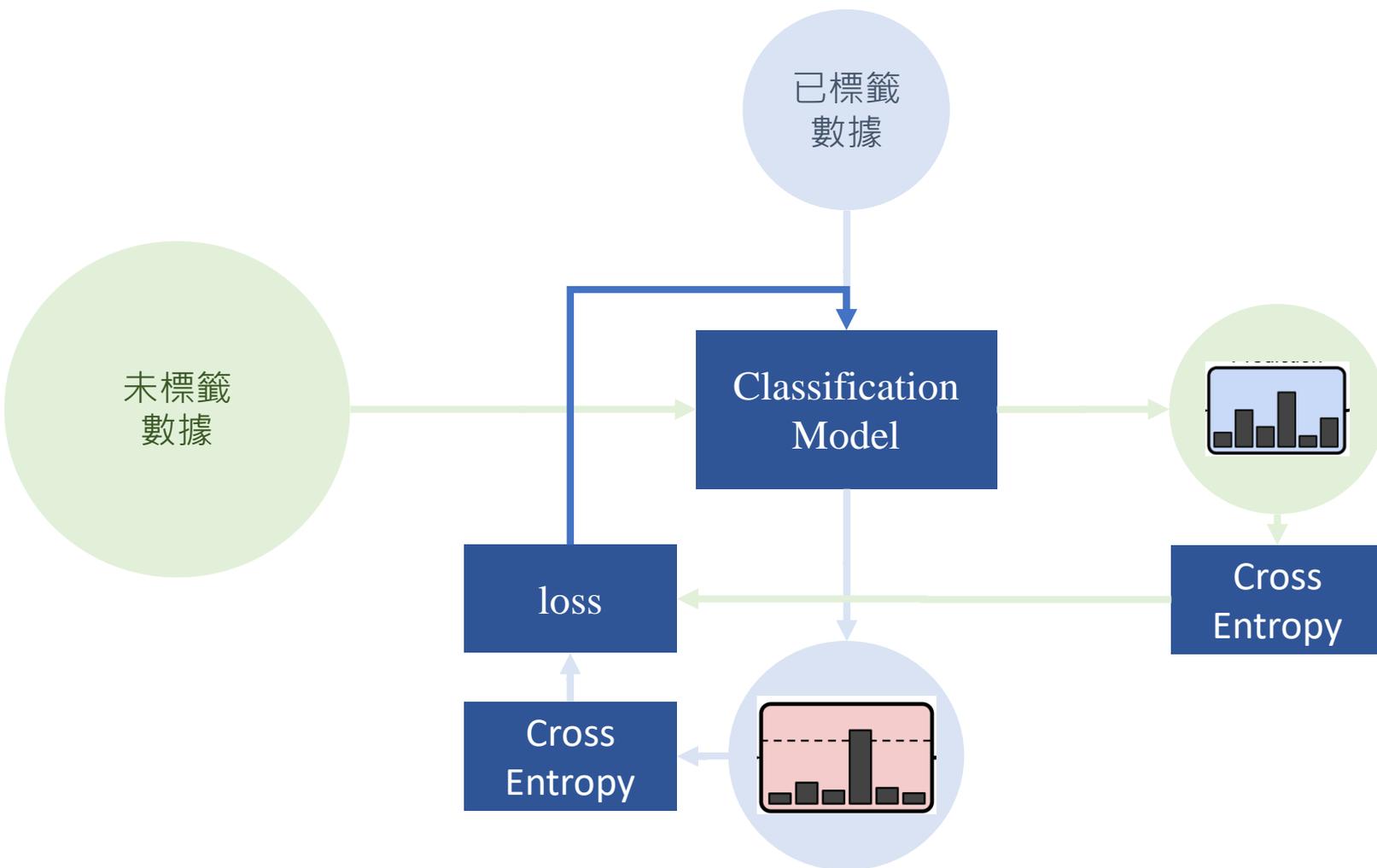
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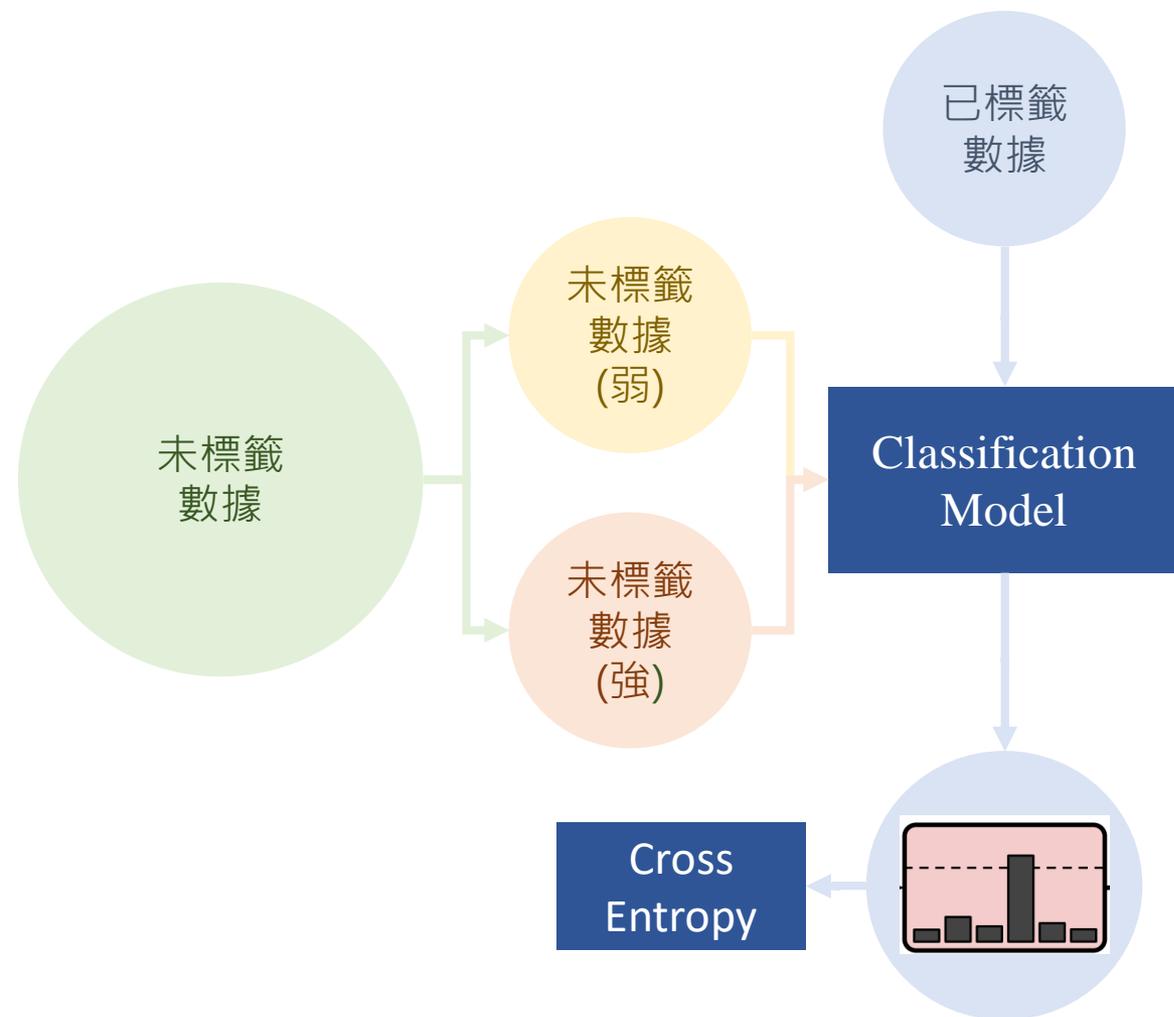
FixMatch



FixMatch



FixMatch

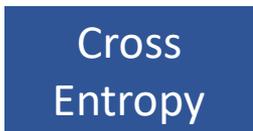
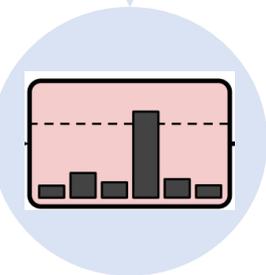
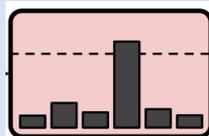


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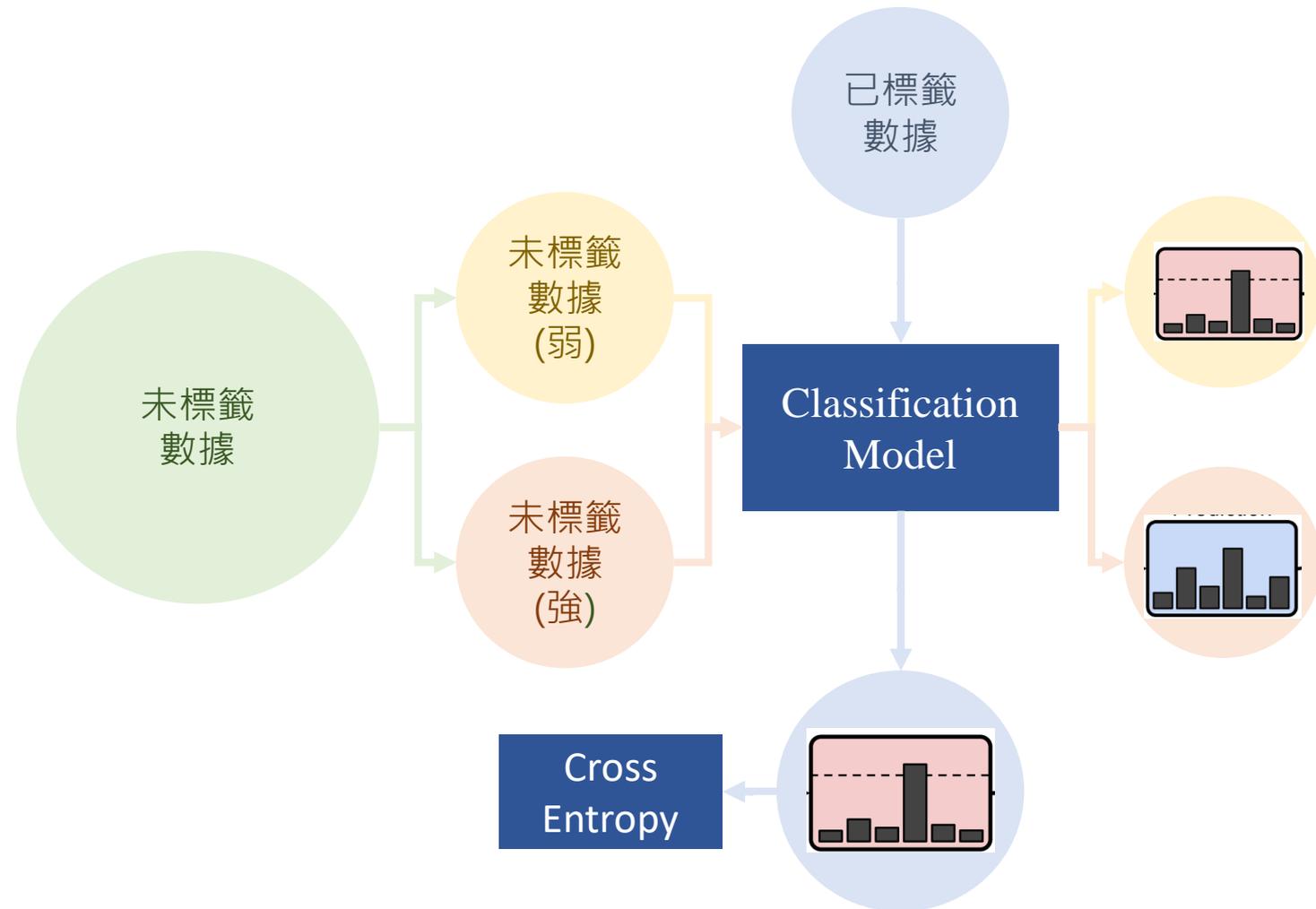
已標籤
數據

Classification
Model

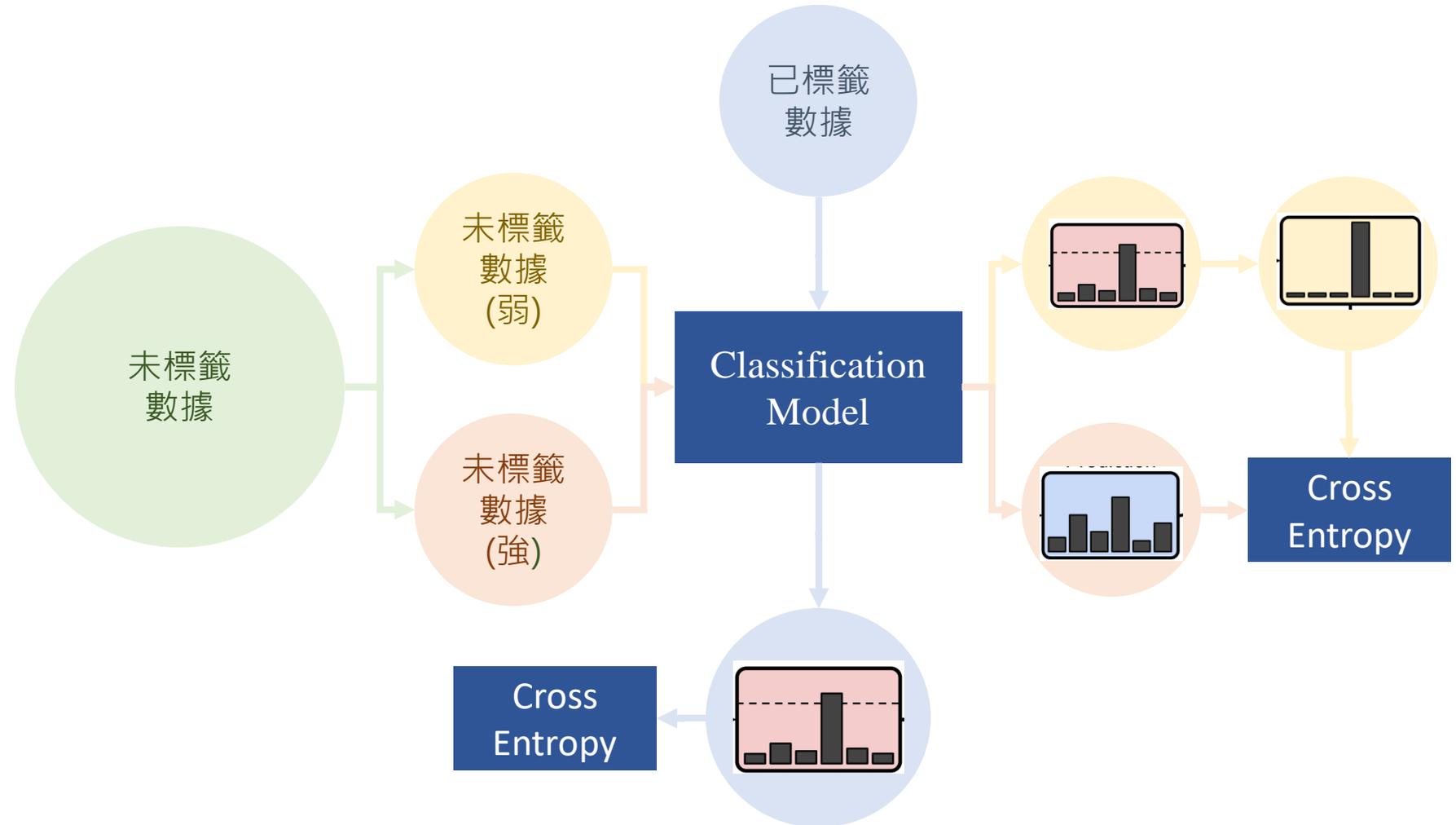
Cross
Entropy



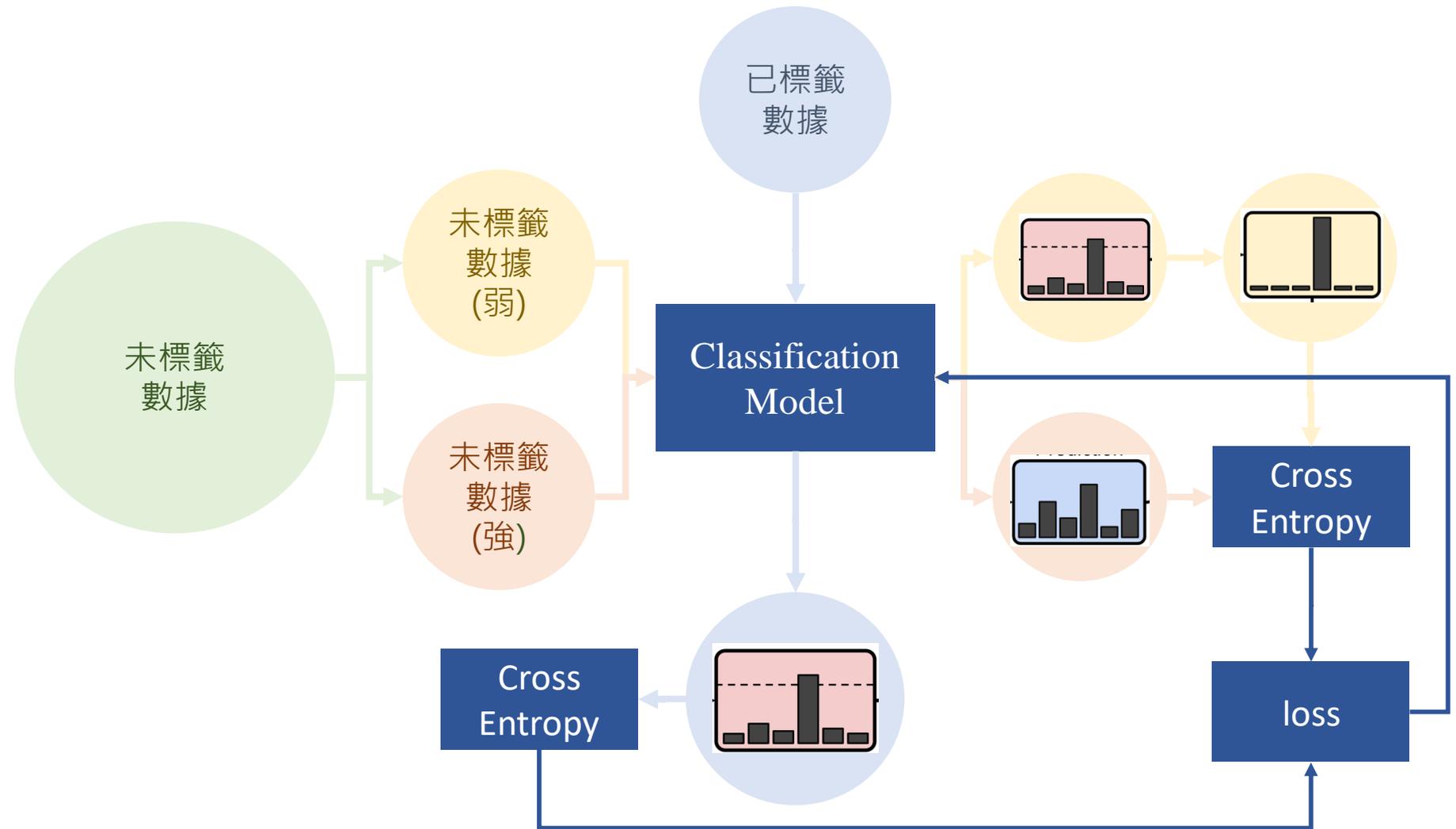
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FixMatch



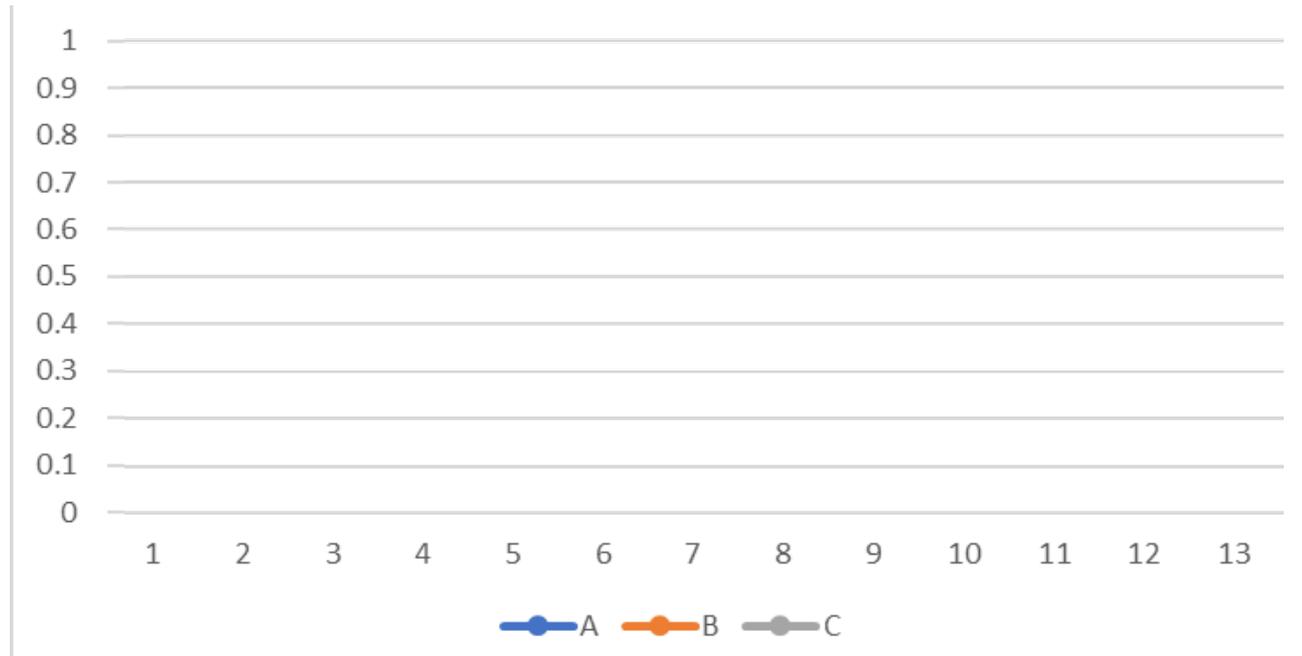
FixMatch



模型驗證 – Dataset

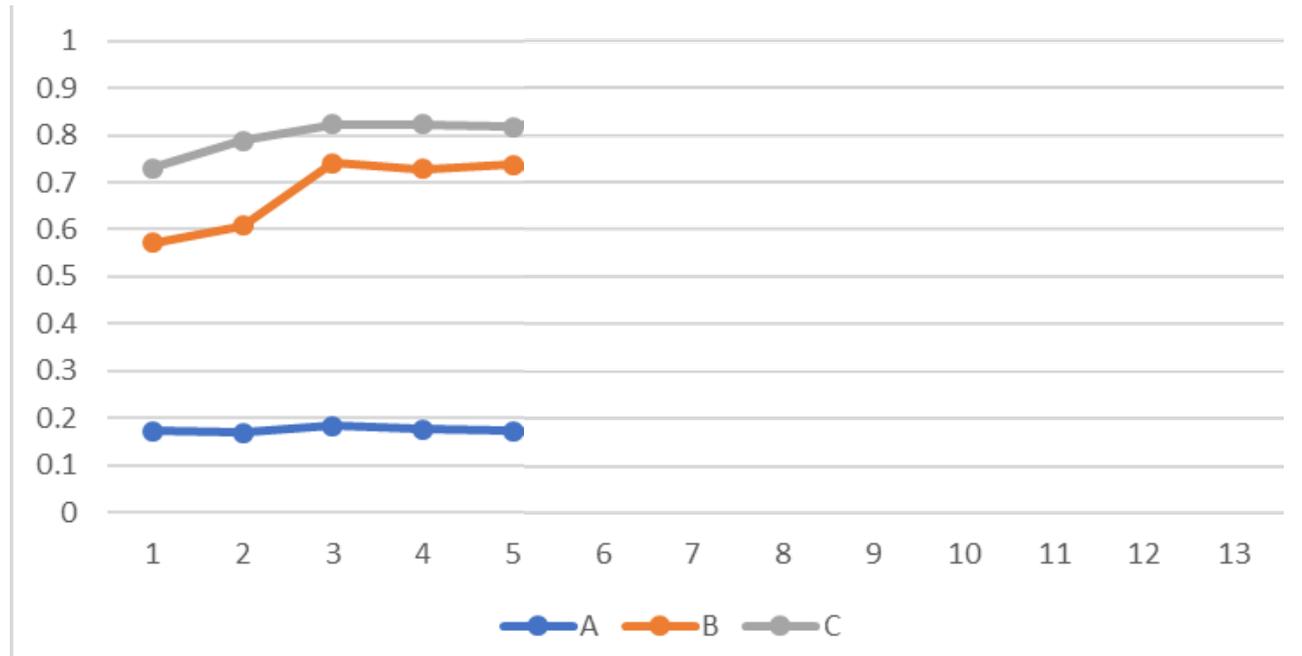
	buildings	forest	glacier	mountain	sea	street	total
Train data	2191	2271	2404	2512	2274	2382	14034
Val data	437	474	553	525	510	501	3000

模型驗證 – Val Acc



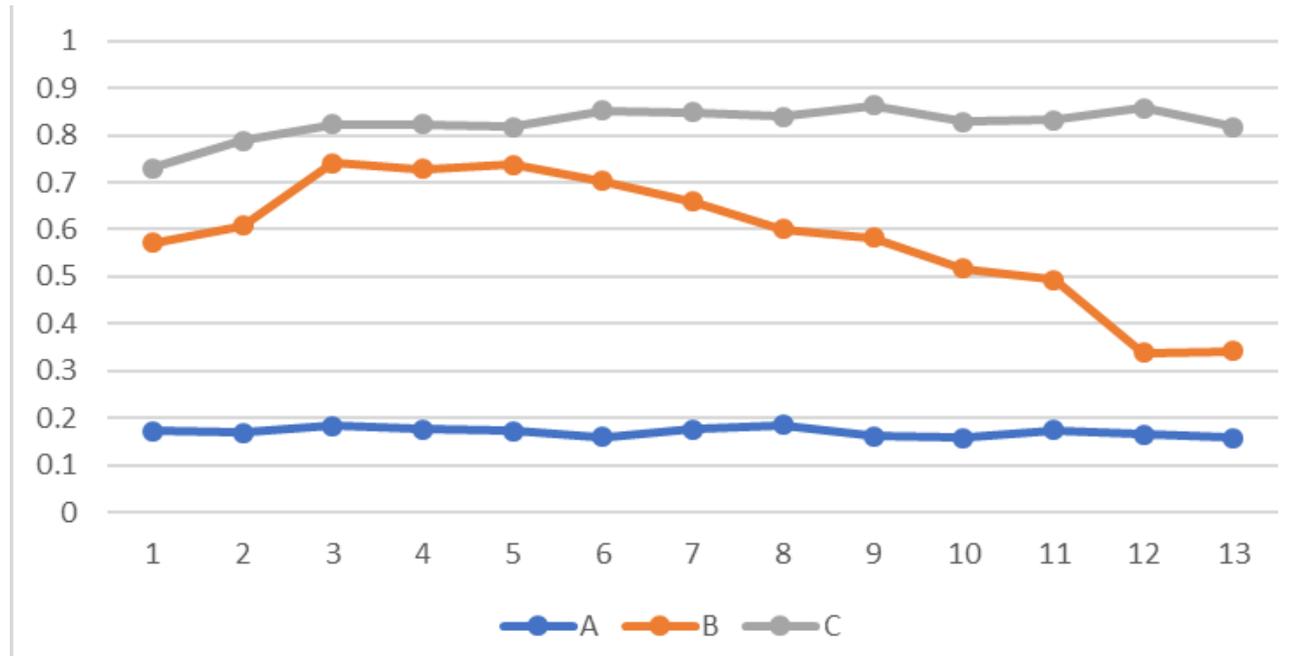
	model	Train data	Val data	類別
A	EfficientNet-b0	1403		
B	EfficientNet-b0 + FixMatch	1403	3000	6
C	EfficientNet-b0	14034		

模型驗證 – Val Acc



	model	Train data	Val data	類別
A	EfficientNet-b0	1403		
B	EfficientNet-b0 + FixMatch	1403	3000	6
C	EfficientNet-b0	14034		

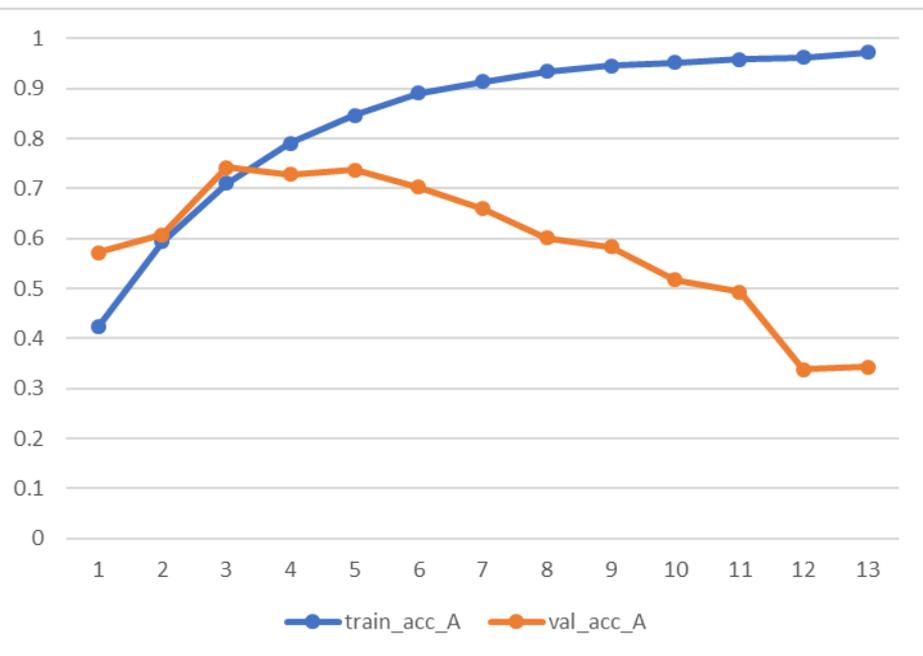
模型驗證 – Val Acc



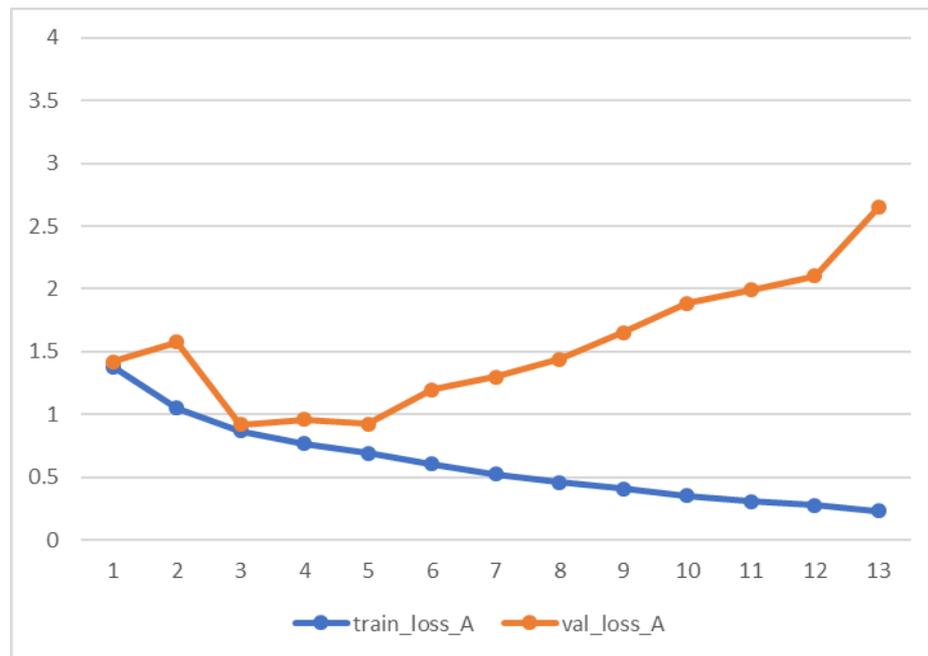
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B	EfficientNet-b0 + FixMatch	1403	3000	6
C	EfficientNet-b0	14034		

模型驗證

ACC



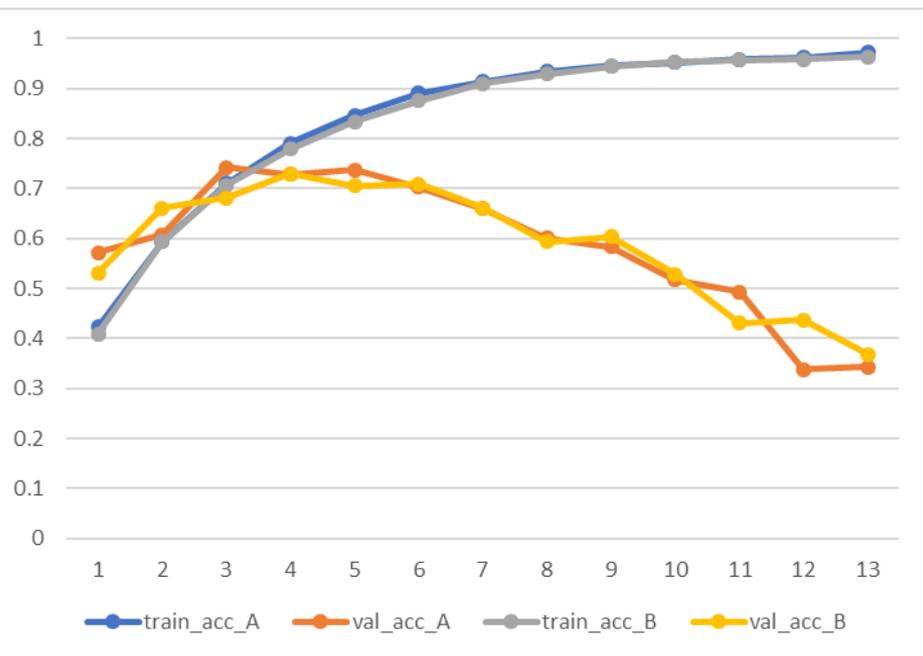
loss



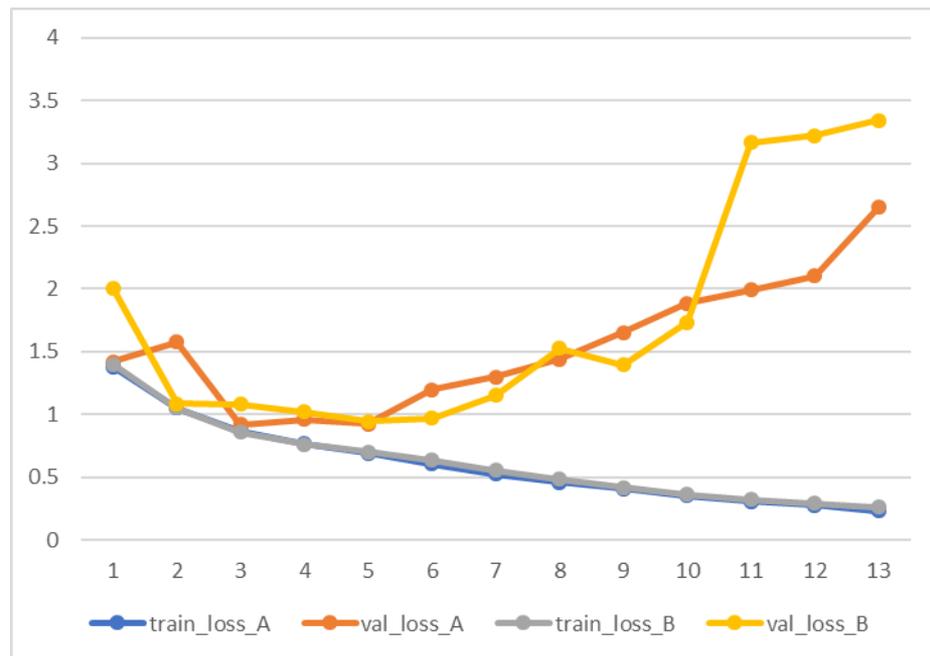
model	Train data	Val data	類別
EfficientNet-b0 + FixMatch	1403	3000	6

模型驗證

ACC



loss



model	Train data	Val data	類別
EfficientNet-b0 + FixMatch	1403	3000	6

AUGMIX: A SIMPLE DATA PROCESSING METHOD TO IMPROVE ROBUSTNESS AND UNCERTAINTY

Dan Hendrycks, Norman Mu, Ekin D. Cubuk,
Barret Zoph, Justin Gilmer, Balaji Lakshminarayanan

Google
ICLR 2020

2020 / 02 / 20

AugMix

CutOut



MixUp

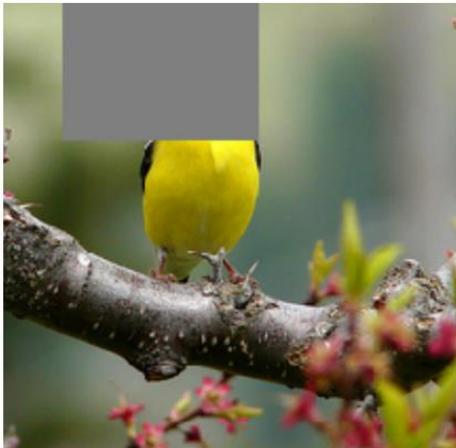


CutMix



AugMix

CutOut



MixUp



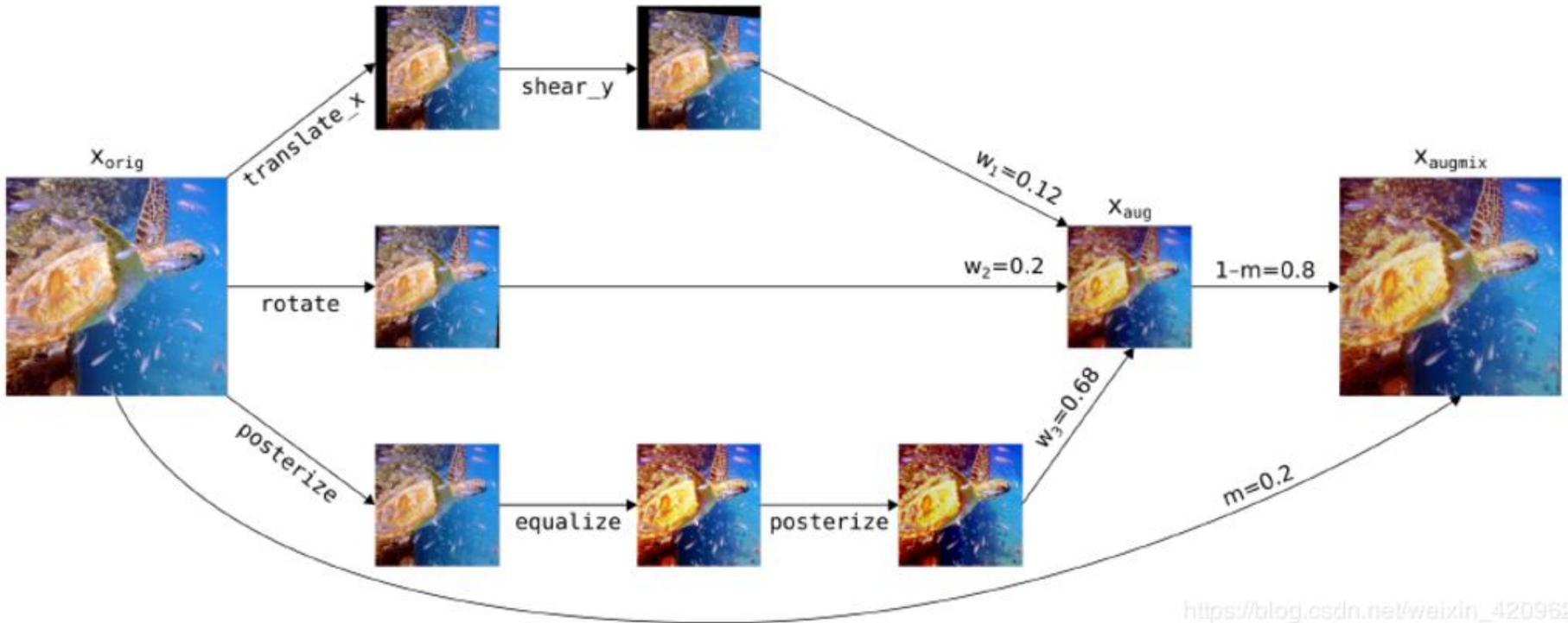
CutMix



AugMix

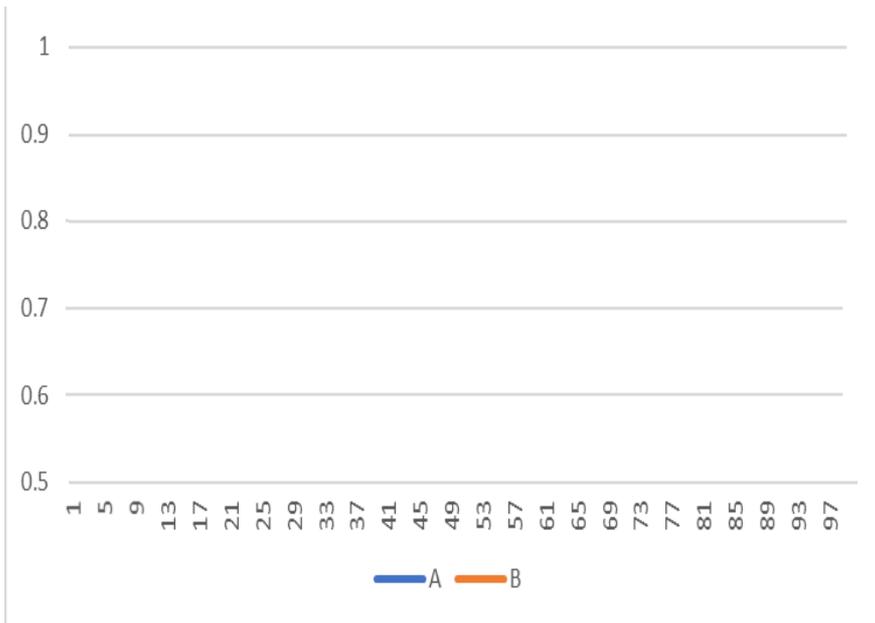


AugMix

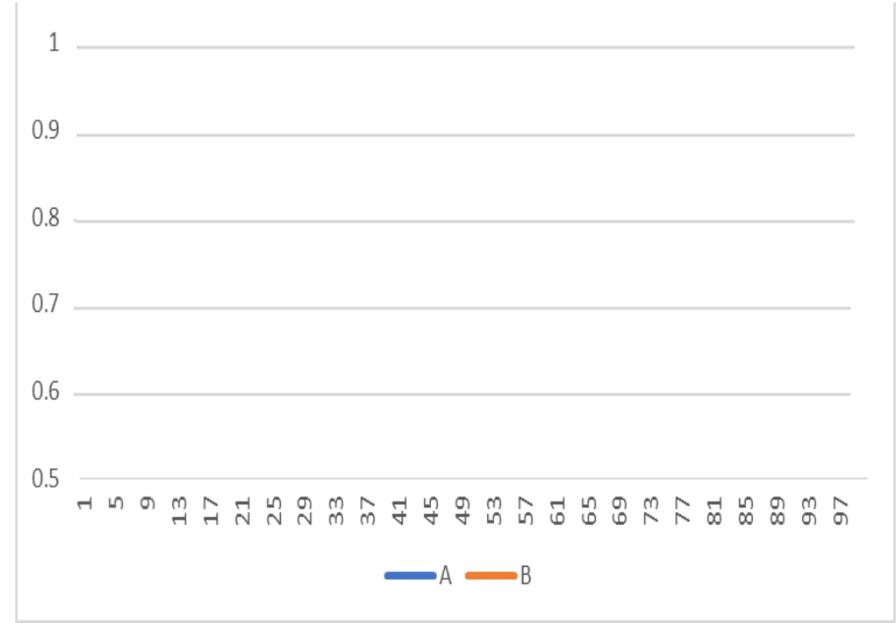


AugMix

Train ACC



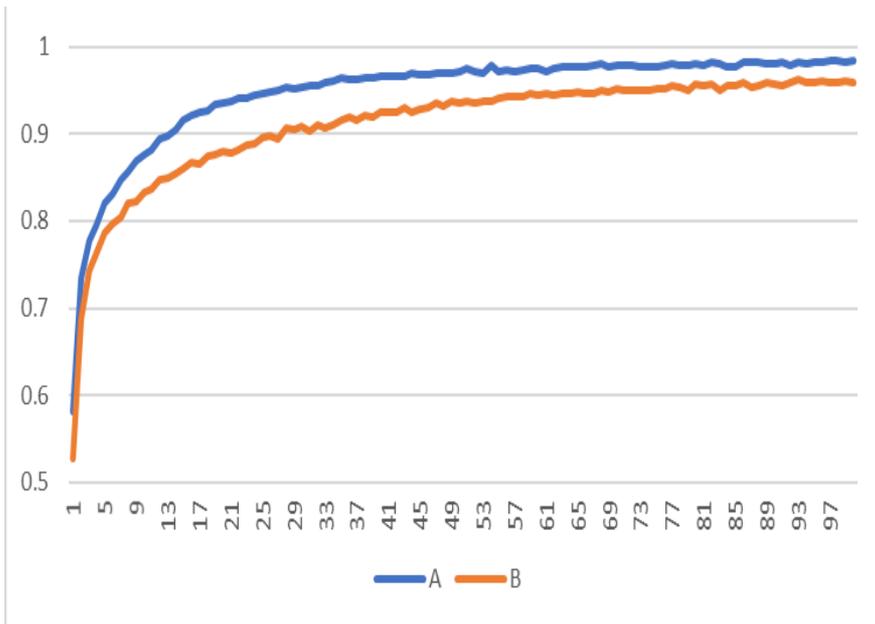
Val ACC



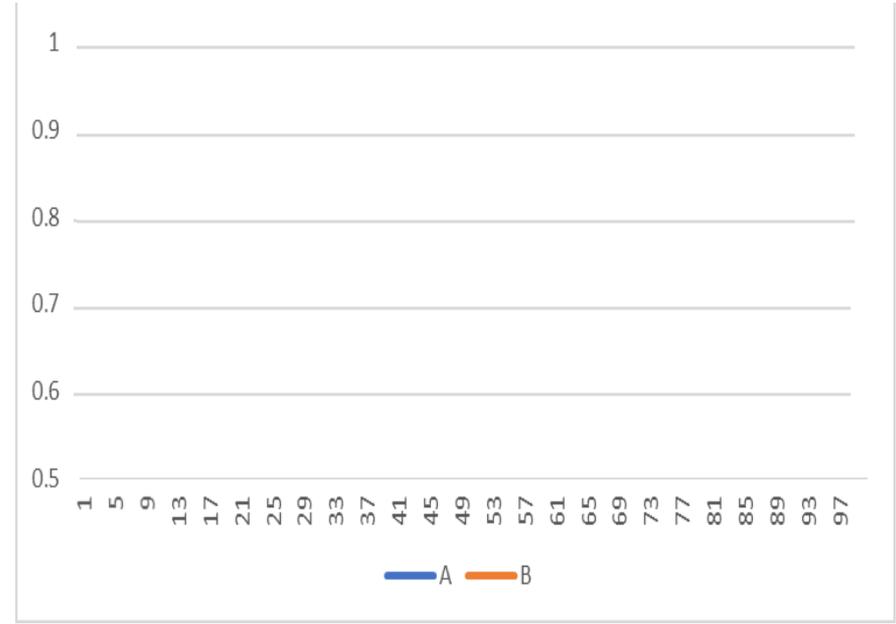
	model	Train data	Val data	類別
A	EfficientNet-b0	14034	3000	6
B	EfficientNet-b0 + AugMix			

AugMix

Train ACC



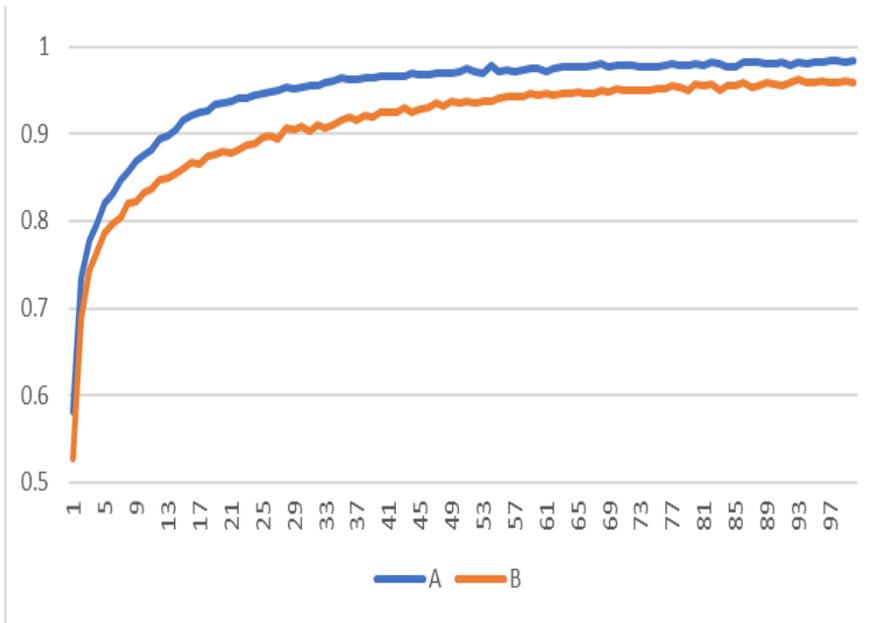
Val ACC



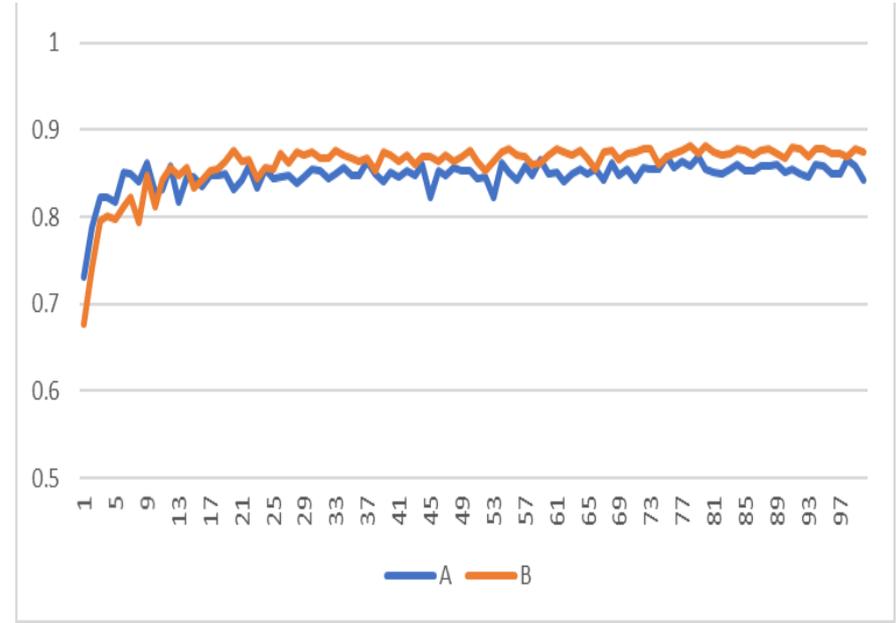
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AugMix

Train ACC



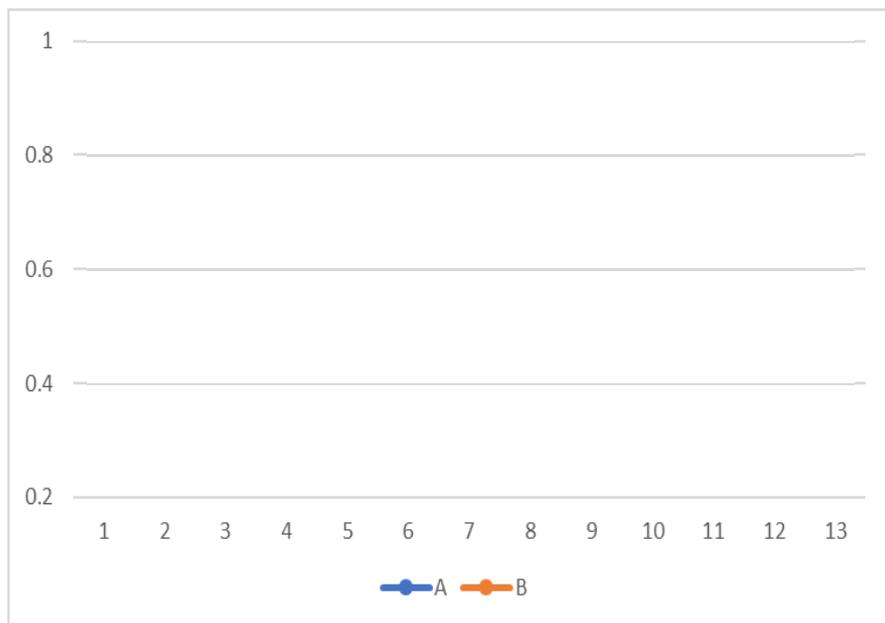
Val ACC



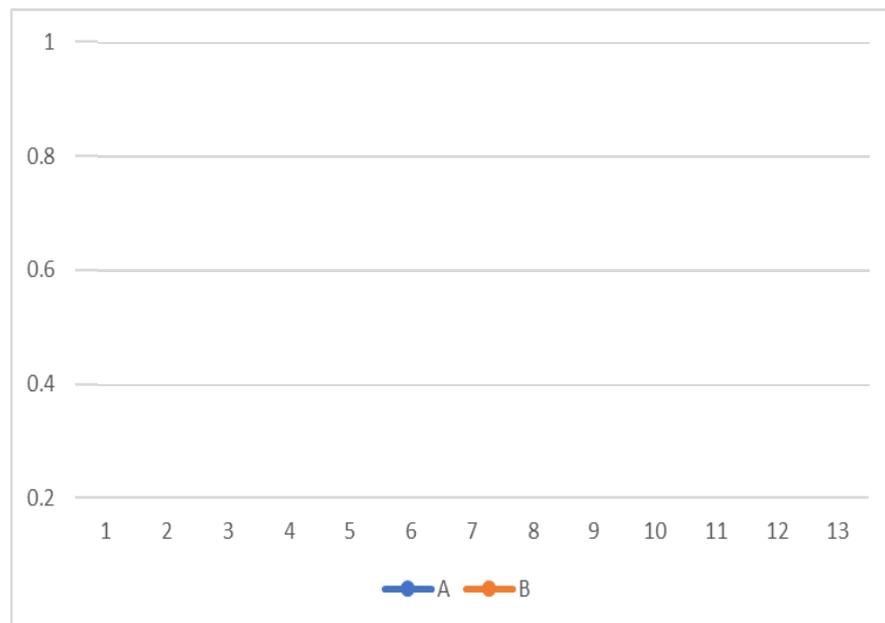
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A	EfficientNet-b0	14034	3000	6
B	EfficientNet-b0 + AugMix			

FixMatch+AugMix

Train ACC



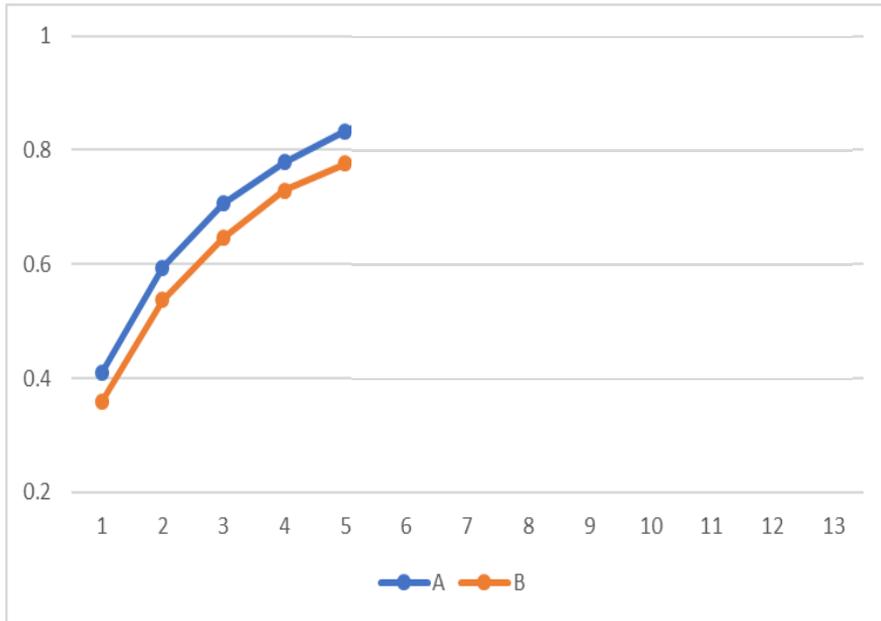
Val ACC



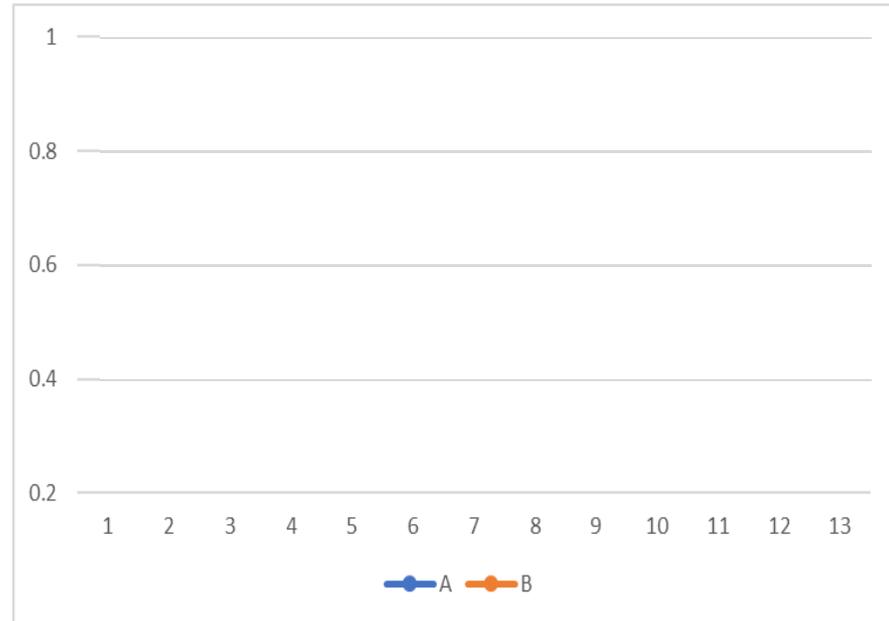
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FixMatch+AugMix

Train ACC



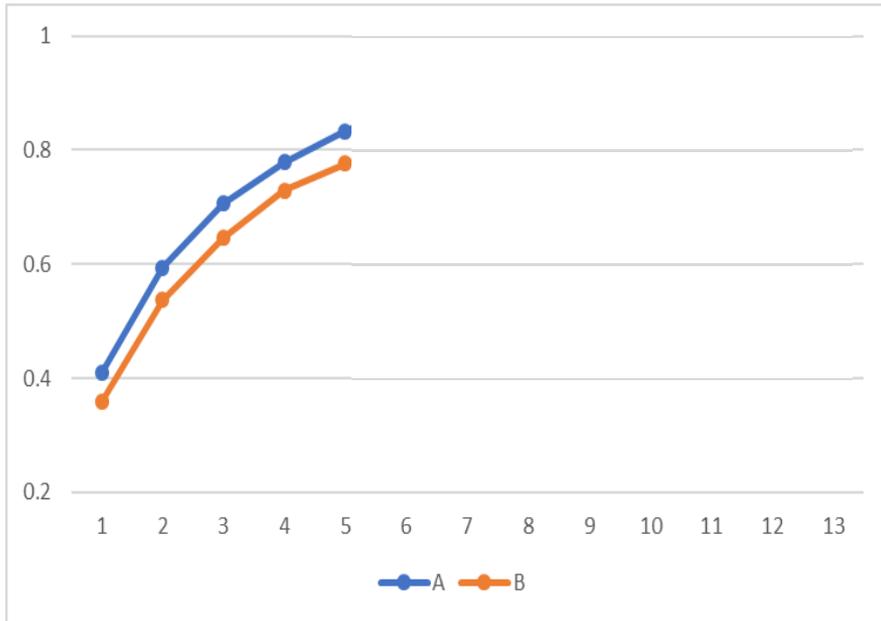
Val ACC



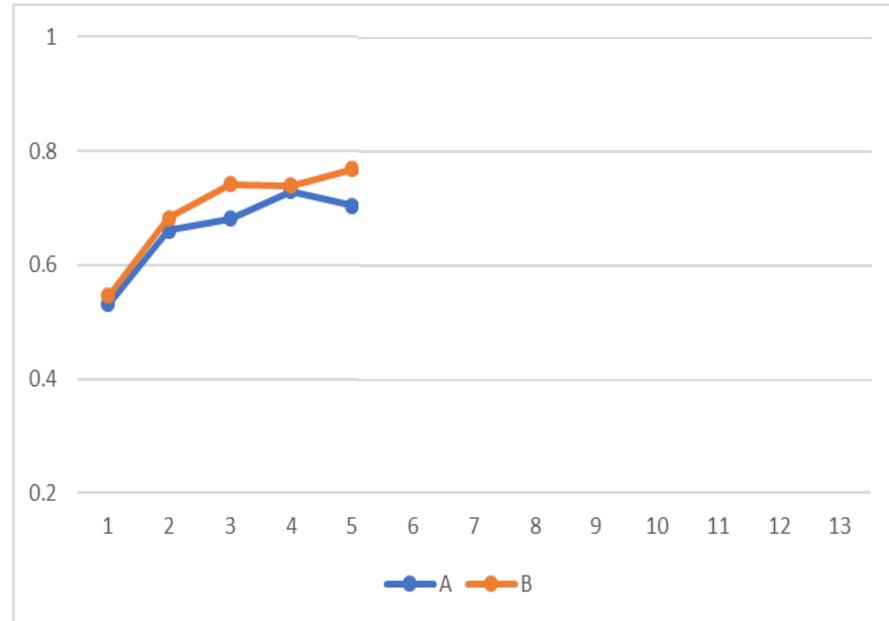
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FixMatch+AugMix

Train ACC



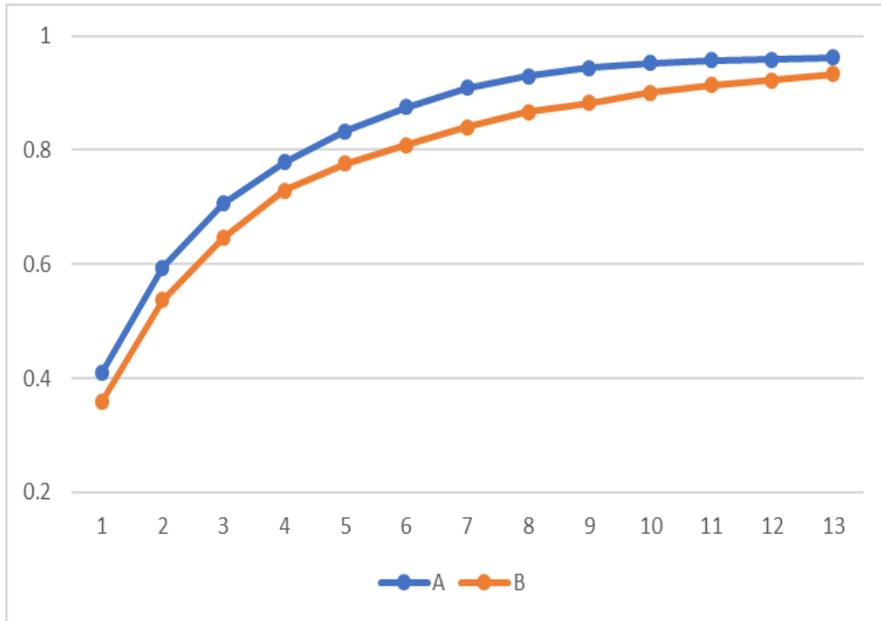
Val ACC



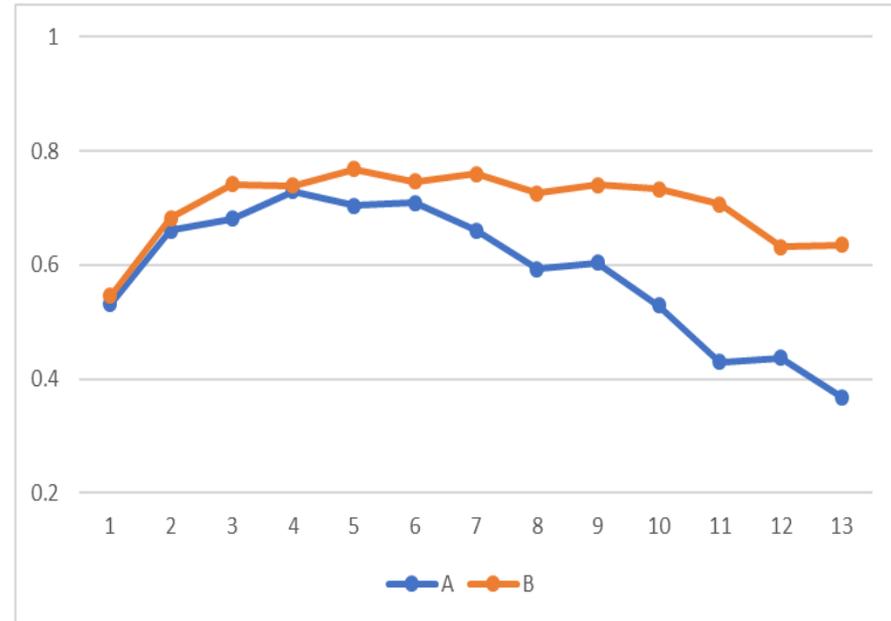
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FixMatch+AugMix

Train ACC



Val ACC



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B	EfficientNet-b0 + FixMatch+ AugMix			

Thank you for your attention