

MSE Subset

BAE LAB.

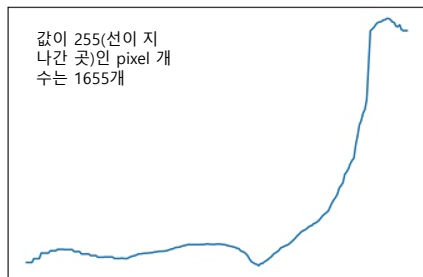
Department of Industrial Engineering, Pusan National University

Reason for making subset

- 피드백
 - 일단 전처리(그래프의 y 축의 범위를 동일하게)는 하지 않고 반전에 대한 검증
 - 2018 / 2020년 데이터 나누기
 - Subset을 만든 것에 대한 근거 마련하기

반전 고려

- 이미지의 크기는 432 x 288 (124,416)
- 만약에 a 이미지의 특정 픽셀 자리에 선이 지나가는데 b 이미지에 지나가지 않는다면?
 - $(255-0)^2 / (432 * 288)$ 만큼의 차이 = 0.52
- (주관적 생각) 1번 그림과 2번 그림은 1655개와 1724개 중에서 1109개가 다른 것이고 2번 그림과 3번 그림은 각각의 1724개 중에서 우리 눈에는 보이지 않고 식별할 수 없지만 그 중에서 1217개만 다른 것



< Average Earnings >

MSE
↔
577

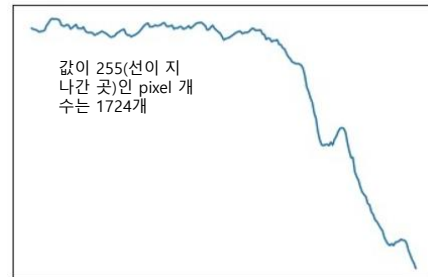
1109
diff



< SCFI >

MSE
↔
633

1217
diff



< Reversed SCFI >

이미지 유사도 측정 (MSE)

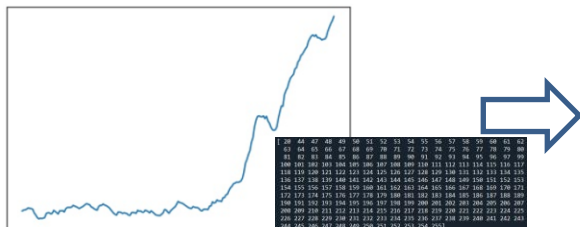
- Mean Squared Error

- 두 이미지의 각 픽셀간 차이를 평균 내어 유사도를 파악

$$MSE = \frac{1}{m \cdot n} \sum_{i=0}^{m-1} \sum_{j=0}^{n-1} [I(i, j) - K(i, j)]^2$$

- 전처리 과정

<원본>



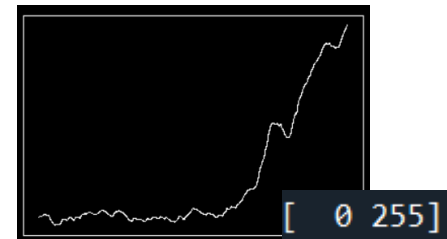
- 3 Channels
- 다양한 Pixel 값

<흑백>



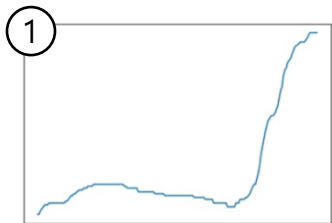
- 1 Channel
- 다양한 Pixel 값

<Threshold>



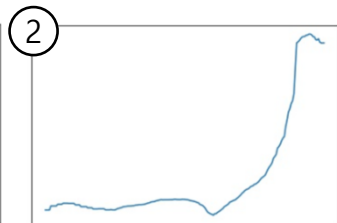
- 1 Channel
- 고정된 Pixel 값

이미지 유사도 측정 (MSE) (2018) (20%)



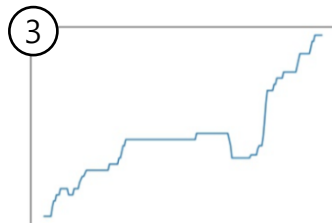
Newbuilding Prices(13000,13500 TEU)

-8 week lag : 577.0



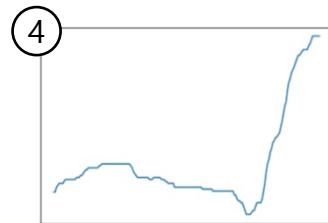
Average Earnings

-4 week lag : 585.36



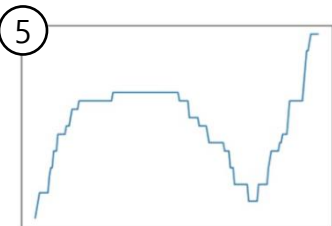
Newbuilding Prices(3500, 4000 TEU)

No lag : 602.61



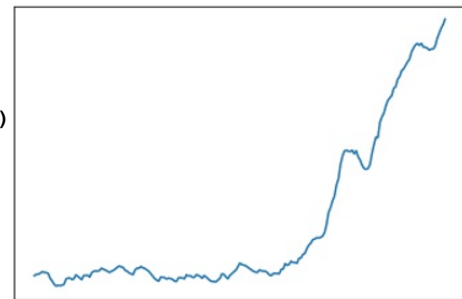
Newbuilding Prices(13000,14000 TEU)

-8 week lag : 617.24



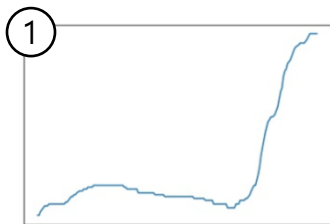
Newbuilding Prices(1650,1850 TEU)

+8 week lag : 713.41



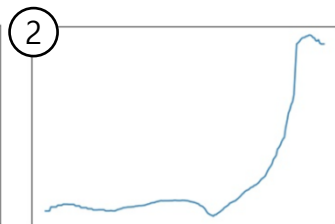
SCFI

이미지 유사도 측정 (MSE) (2018) (50%)



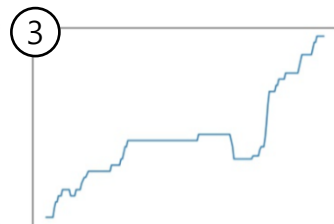
Newbuilding Prices(13000, 13500 TEU)

-8 week lag : 577.0



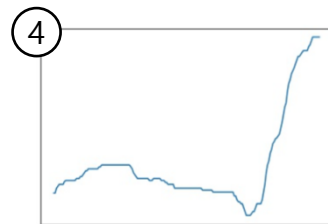
Average Earnings

-4 week lag : 585.36



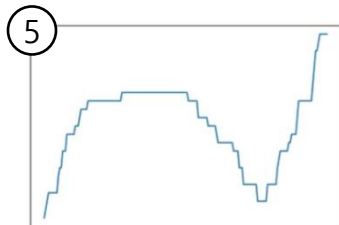
Newbuilding Prices(3500, 4000 TEU)

No lag : 602.61



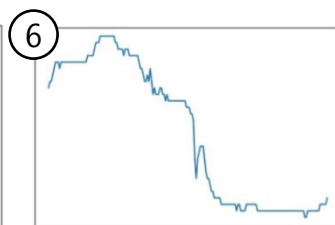
Newbuilding Prices(13000, 14000 TEU)

-8 week lag : 617.24



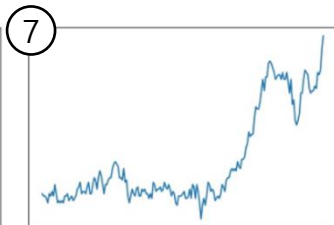
Newbuilding Prices(1650, 1850 TEU)

+8 week lag : 713.41



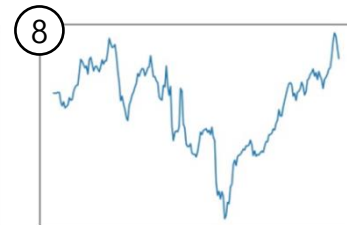
5 Year Finance based on Libor

-8 week lag : 799.12



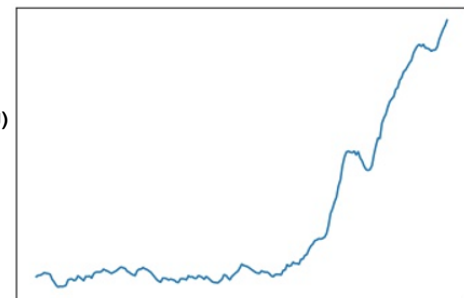
PCI- West Coast North America

+8 week lag : 1090.23



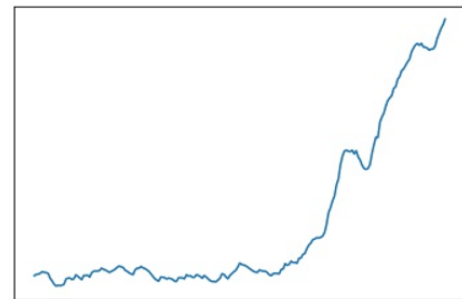
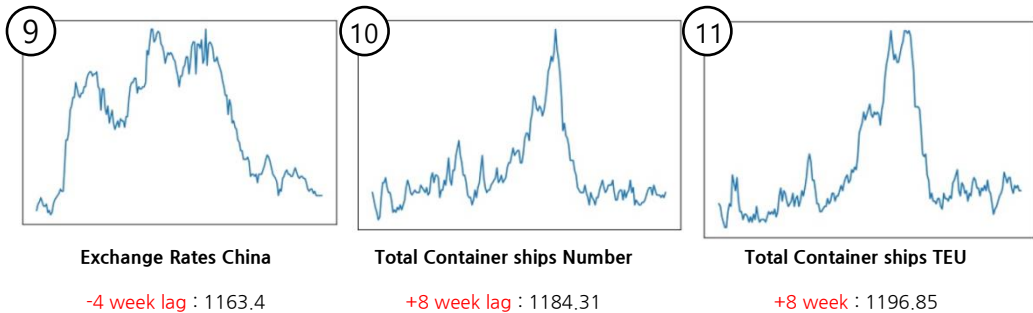
Bunker Prices

+8 week lag : 1114.27



SCFI

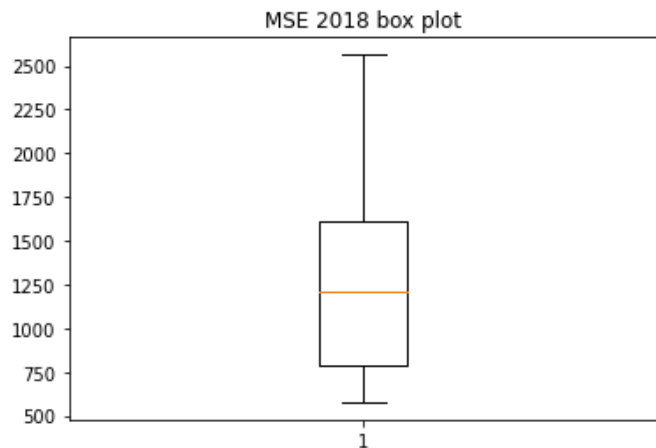
이미지 유사도 측정 (MSE) (2018) (50%)



SCFI

Reason for making subset

- 근거
 - 값들에 대한 박스 플롯을 그리고 중위수(50%) 안에 있는 feature들을 우선 선택한 뒤에 각 feature 중에서 MSE 값이 가장 작은 lag type을 도출하기
 - 상재 형께서 말씀해주신 20% 기준으로 분리



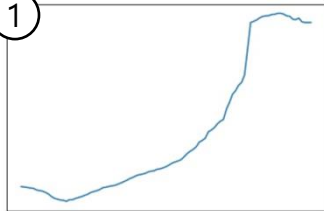
threshold	float64	1	700.97
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max	float64	1	2563.56
min	float64	1	577.0

q1	float64	1	783.44
q2	float64	1	1204.9499999999998
q3	float64	1	1607.385

이미지 유사도 측정 (MSE) (2020) (20%)

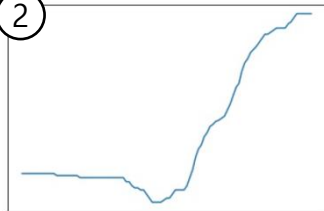
①



Average Earnings

-8 week lag : 495.46

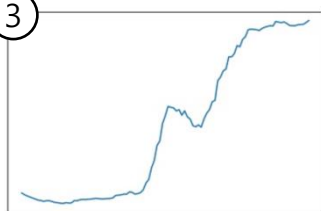
②



Newbuilding Prices(13000,13500 TEU)

-4 week lag : 506.96

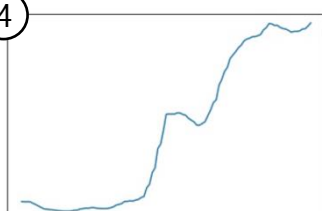
③



SCFI-Europe

No lag : 507.49

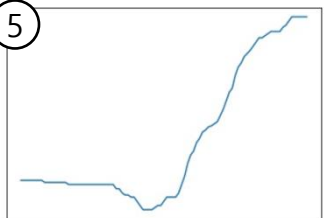
④



SCFI-Med

No lag : 519.51

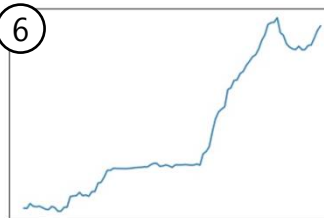
⑤



Newbuilding Prices(13000,14000 TEU)

-8 week lag : 534.14

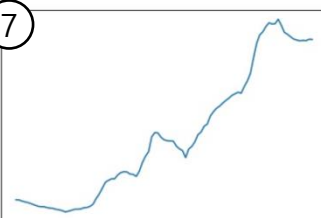
⑥



SCFI-EC America

-8 week lag : 538.32

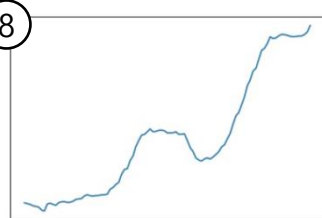
⑦



SCFI-S Africa (Durban)

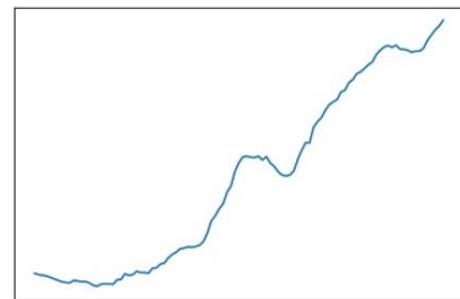
-8 week lag : 538.84

⑧



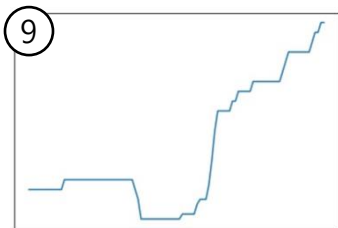
SCFI-ANZ (Melbourne)

-4 week lag : 544.07



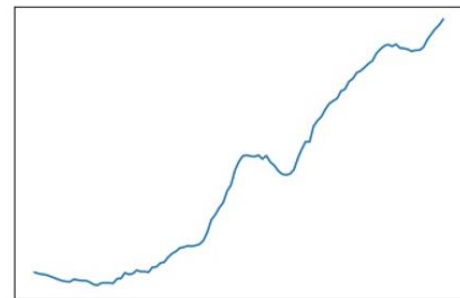
SCFI

이미지 유사도 측정 (MSE) (2020) (20%)



Newbuilding Prices(3500,4000 TEU)

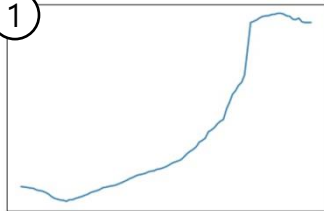
+4 week lag : 549.82



SCFI

이미지 유사도 측정 (MSE) (2020) (50%)

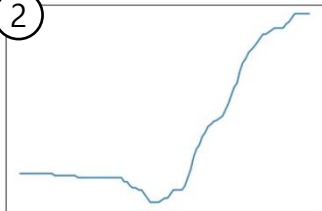
①



Average Earnings

-8 week lag : 495.46

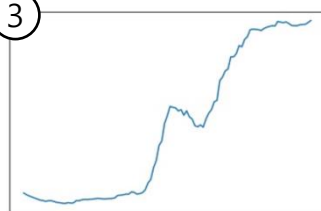
②



Newbuilding Prices(13000,13500 TEU)

-4 week lag : 506.96

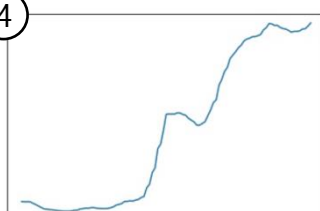
③



SCFI-Europe

No lag : 507.49

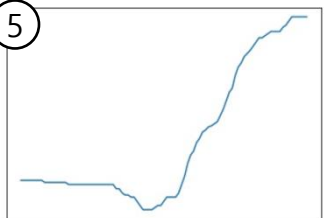
④



SCFI-Med

No lag : 519.51

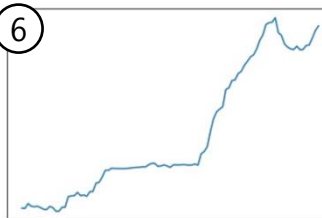
⑤



Newbuilding Prices(13000,14000 TEU)

-8 week lag : 534.14

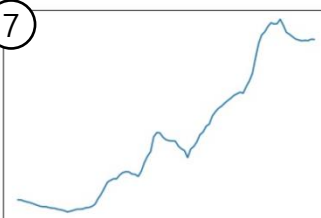
⑥



SCFI-EC America

-8 week lag : 538.32

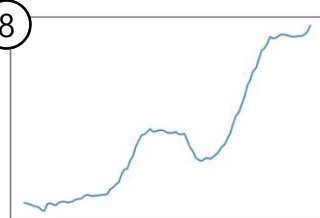
⑦



SCFI-S Africa (Durban)

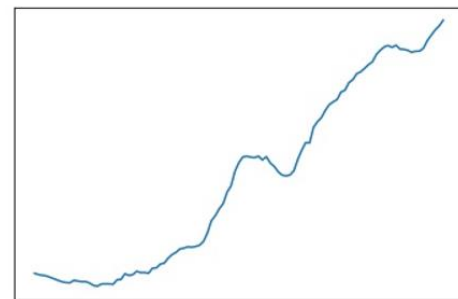
-8 week lag : 538.84

⑧



SCFI-ANZ (Melbourne)

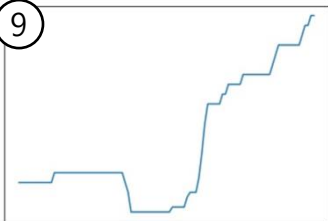
-4 week lag : 544.07



SCFI

이미지 유사도 측정 (MSE) (2020) (50%)

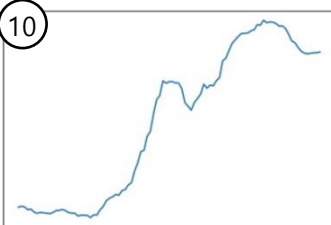
9



Newbuilding Prices(3500,4000 TEU)

+4 week lag : 549.82

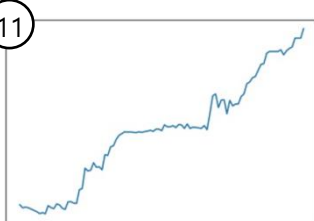
10



SCFI-W Africa (Lagos)

-8 week lag : 566.02

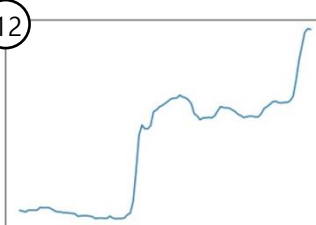
11



SCFI-WC America (base port)

+4 week : 566.54

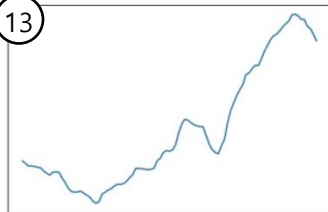
12



SCFI-SE Asia (Singapore)

-4 week : 569.68

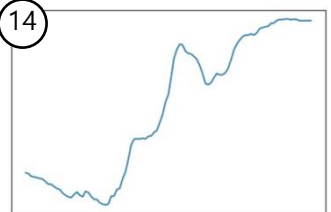
13



SCFI-Persian Gulf (Dubai)

+8 week lag : 571.25

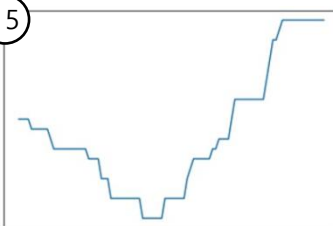
14



SCFI-S America (Santos)

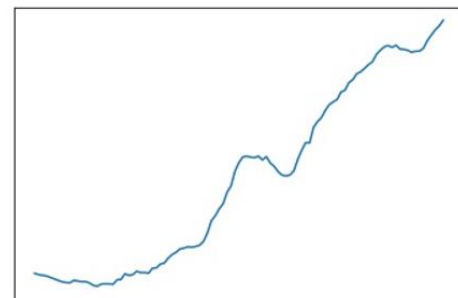
+4 week lag : 587.45

15



Newbuilding Prices(1650,1850 TEU)

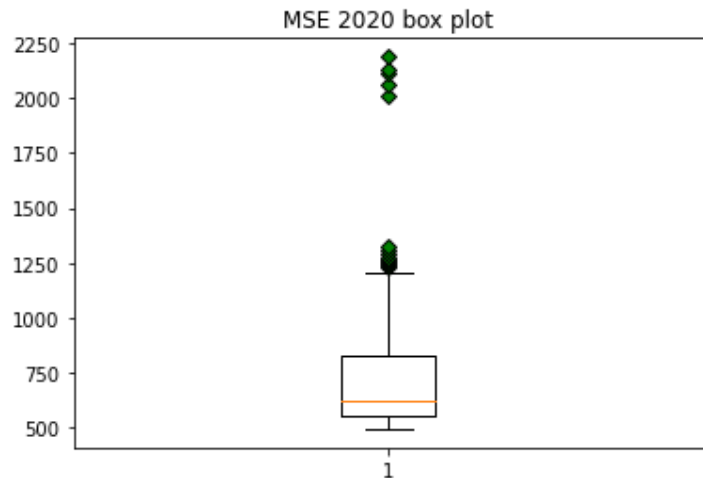
-8 week lag : 607.31



SCFI

Reason for making subset

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 - 값들에 대한 박스 플롯을 그리고 중위수(50%) 안에 있는 feature들을 우선 선택한 뒤에 각 feature 중에서 MSE 값이 가장 작은 lag type을 도출하기
 - 상재 형께서 말씀하신 20% 안에 있는 것들만 도출하기



threshold	float64	1	550.652
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q1	float64	1	558.4425
q2	float64	1	626.6500000000001
q3	float64	1	828.91
max	float64	1	2187.26
min	float64	1	495.46

Q&A