FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG
SCHOOL OF ENGINEERING

Glacier Front Detection at Tidewater Glaciers from Radar Images (Supplementary Material for the Online Presentation)

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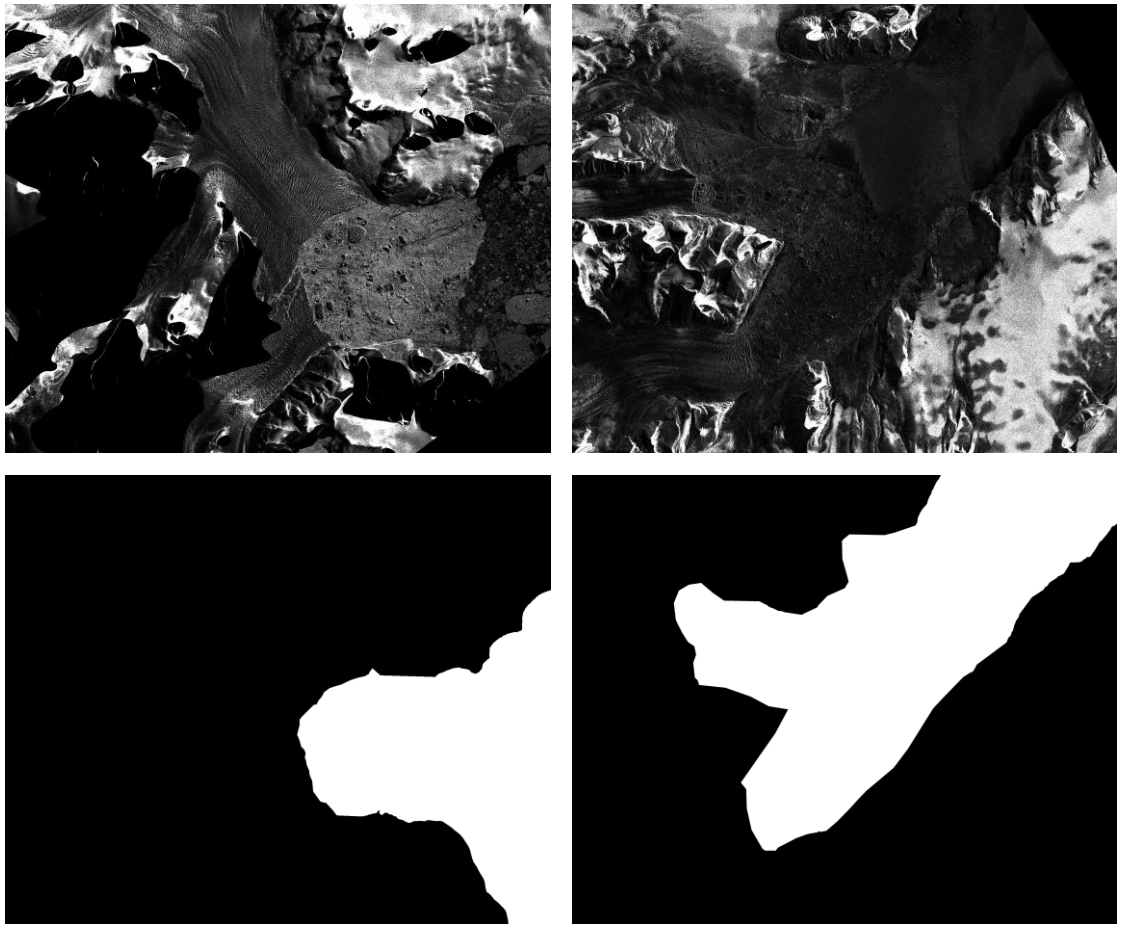
Sample SAR Images and their Corresponding Ground Truth

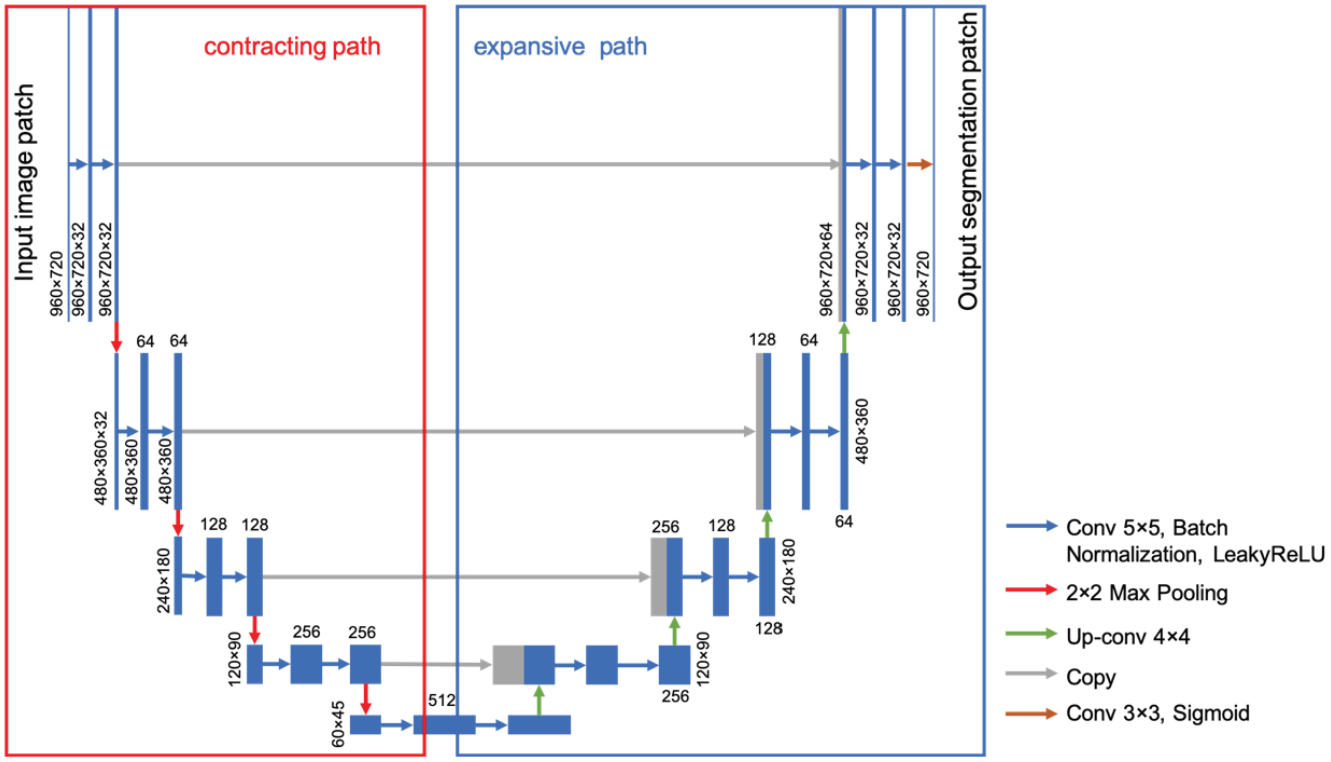


2012-08-15_TSX_10_1

2014-12-22_TDX_5_2

U-Net and FCN Architecture

- With and without skip connection



Courtesy of Zhang et al. "Automatically delineating the calving front of Jakobshavn Isbræ from multitemporal TerraSAR-X images: a deep learning approach." The Cryosphere 13, no. 6 (2019): 1729-1741.

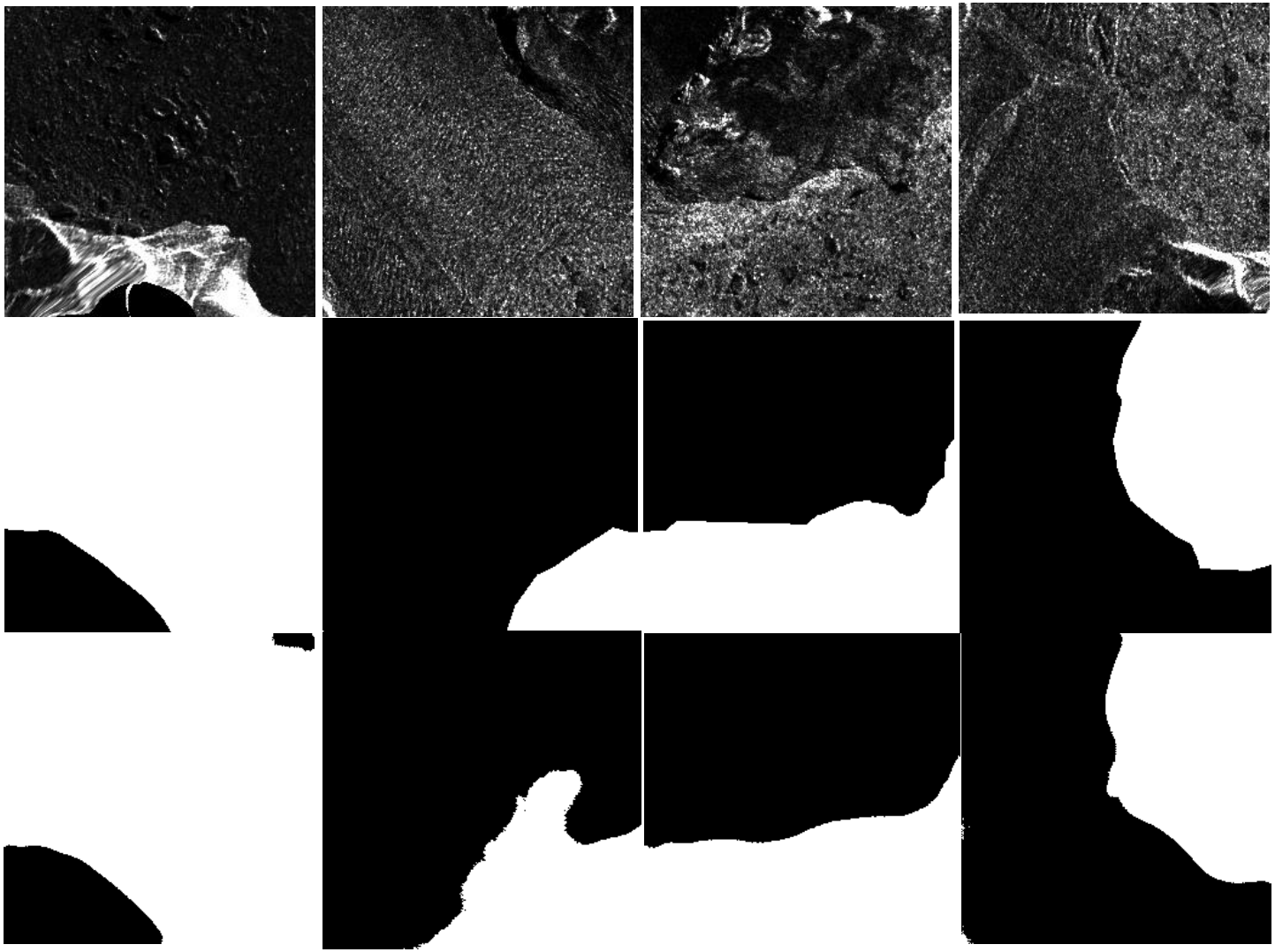
FCN Results

- 92.96% dice coefficient

image:

ground truth:

segmentation:



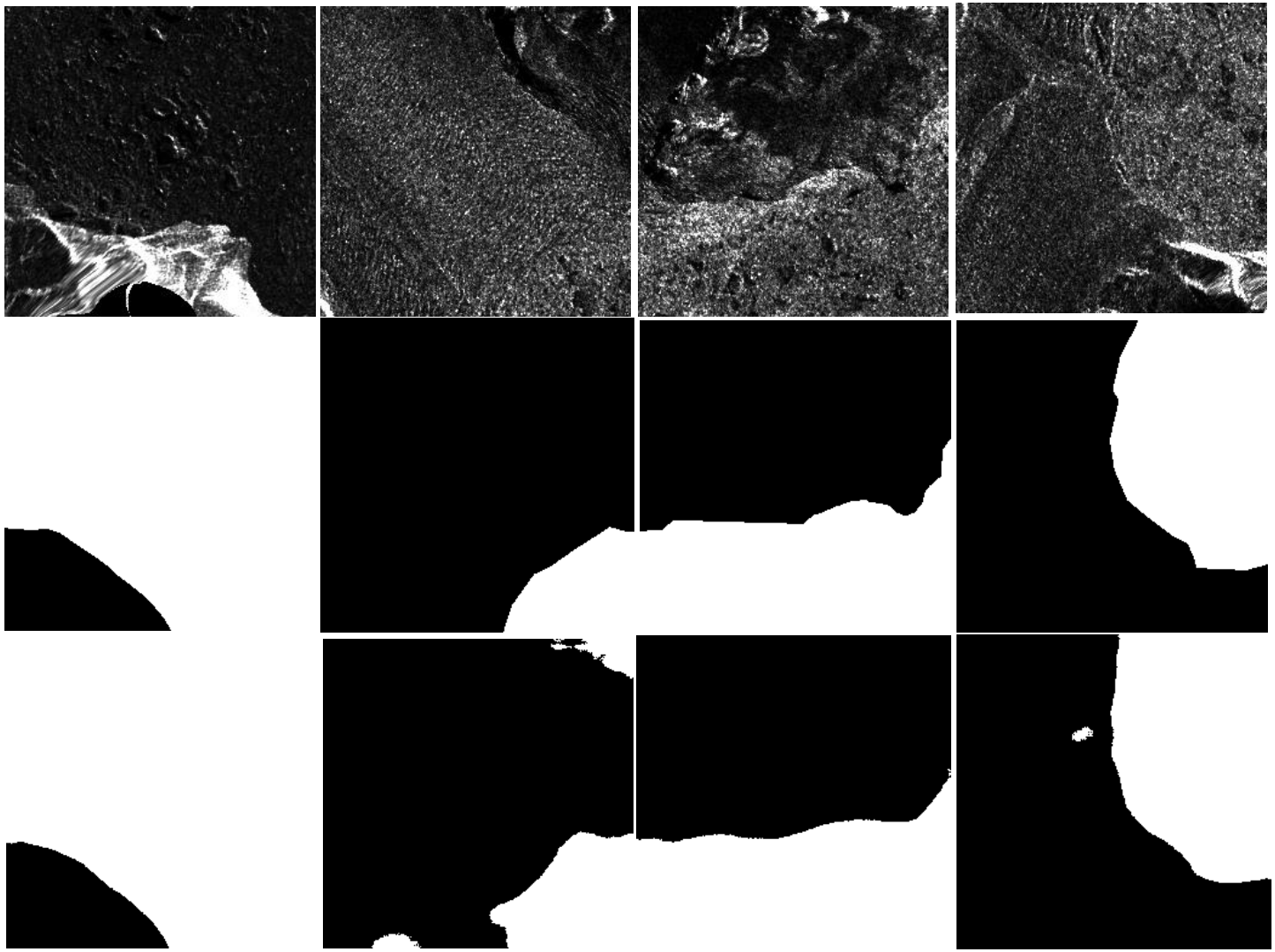
U-Net Results

- 93.20% dice coefficient

image:

ground truth:

segmentation:



Conclusion

- Dice coefficient:
  - FCN → 92.96%
  - U-net → 93.20%
- Comparable performance of FCN and U-net
- Faster training and inference by FCN