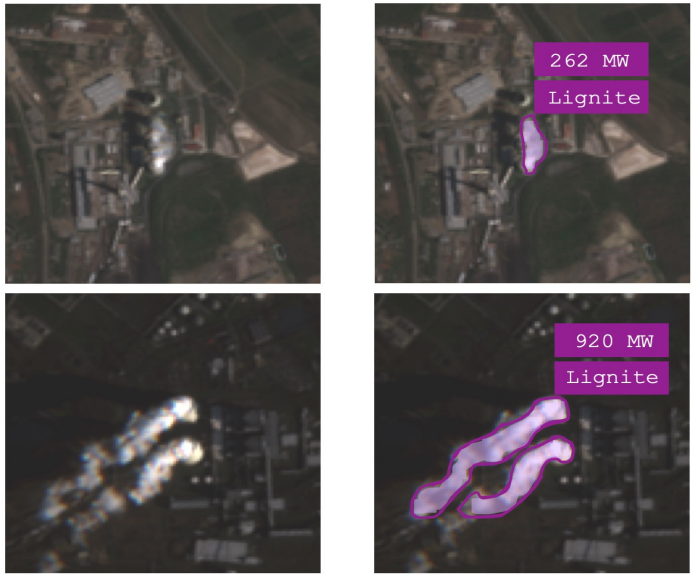
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# Multitask Learning for Estimating Power Plant Greenhouse Gas Emissions from Satellite Imagery



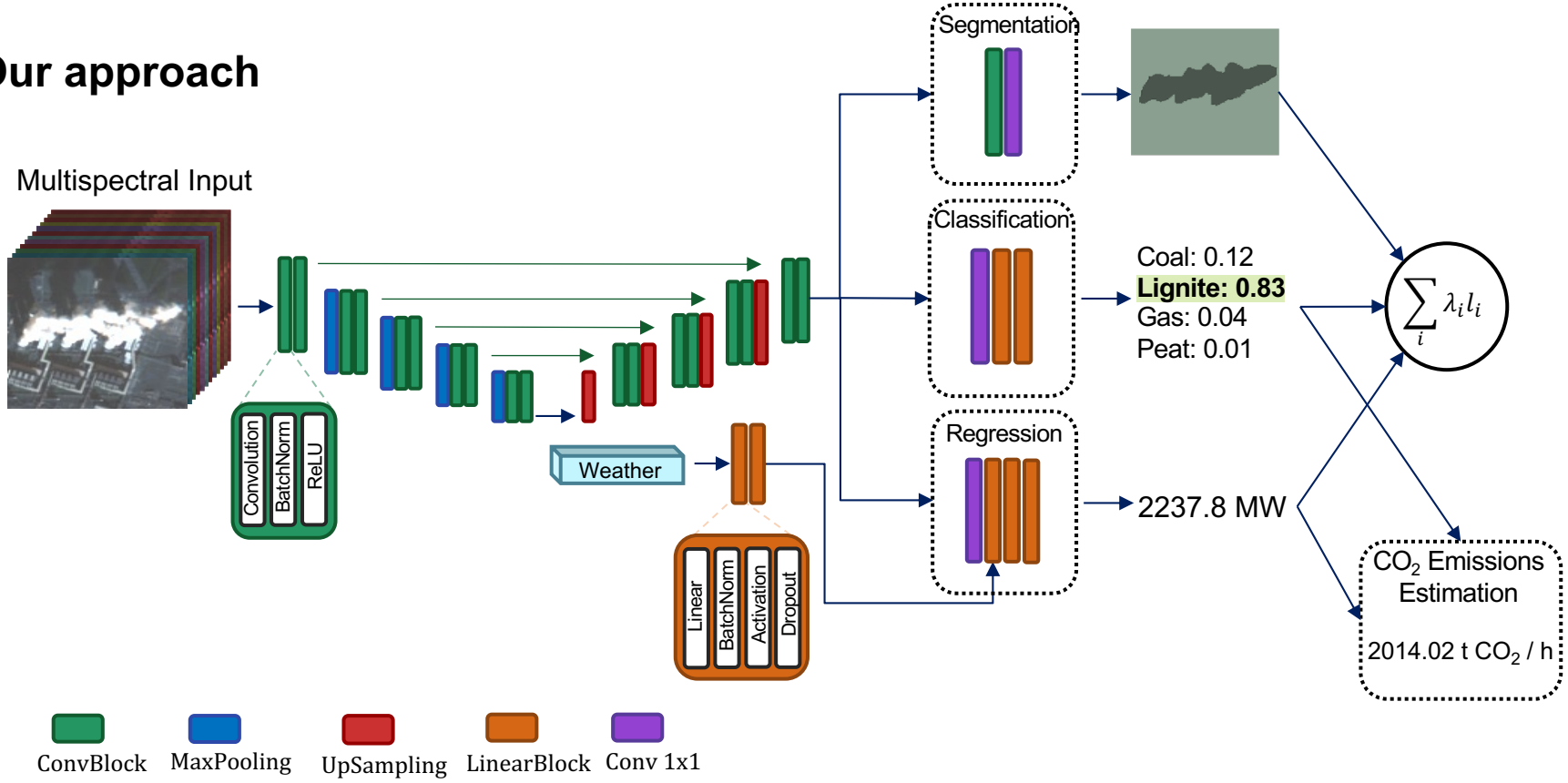

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email: joelle.hanna@unisg.ch
github: https://github.com/HSG-AIML/RemoteSensingCO2Estimation
data: https://zenodo.org/record/5644746

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# Our approach



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# Some results

**Table 1:** Test set multitask vs. singletask baseline performance for plume segmentation (seg.), power generation regression (reg.) and fuel type classification (cls.).

| Loss | Task Weights ($\lambda_i$) Seg. | Reg. | Cls. | Seg. IoU | Reg. MAE / $R^2$ | Cls. accuracy |
|---|---|---|---|---|---|---|
| Seg. only | 1 | 0 | 0 | 0.640 | - | - |
| Reg. only | 0 | 1 | 0 | - | 225 / 0.66 | - |
| Cls. only | 0 | 0 | 1 | - | - | 0.775 |
| Reg. + Seg. | 0.4 | 0.6 | 0 | 0.643 | 145 / 0.81 | - |
| Reg. + Cls. | 0 | 0.6 | 0.4 | - | 151 / 0.81 | 0.779 |
| All tasks | 0.15 | 0.7 | 0.15 | **0.668** | **139 / 0.83** | **0.853** |

