Comparison of Tree Segmentation Schemes based on Lidar and Hyperspectral Data

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Database (Kandare, Ørka, Chan, & Dalponte, 2016)

Objective

This work proposes a scheme of semantic segmentation by testing a methodology of feature extraction based on hyperspectral and lidar data

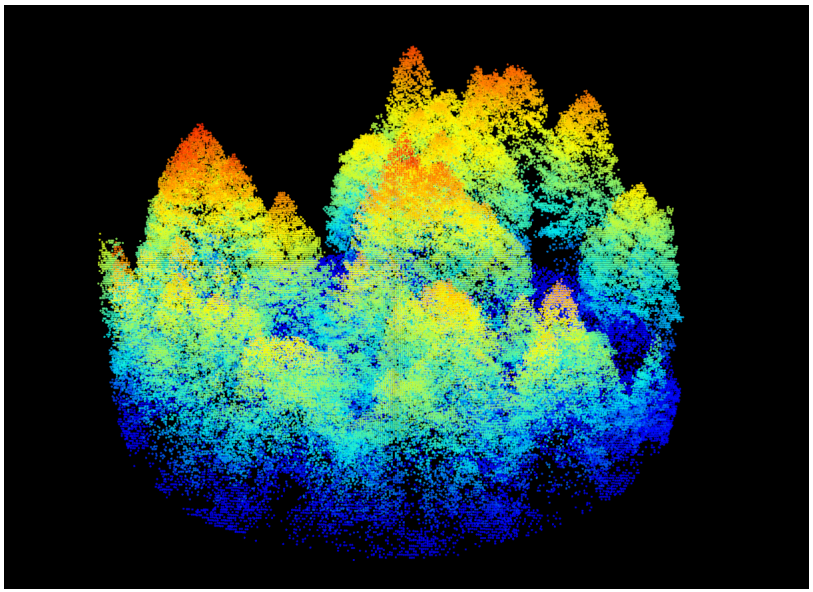
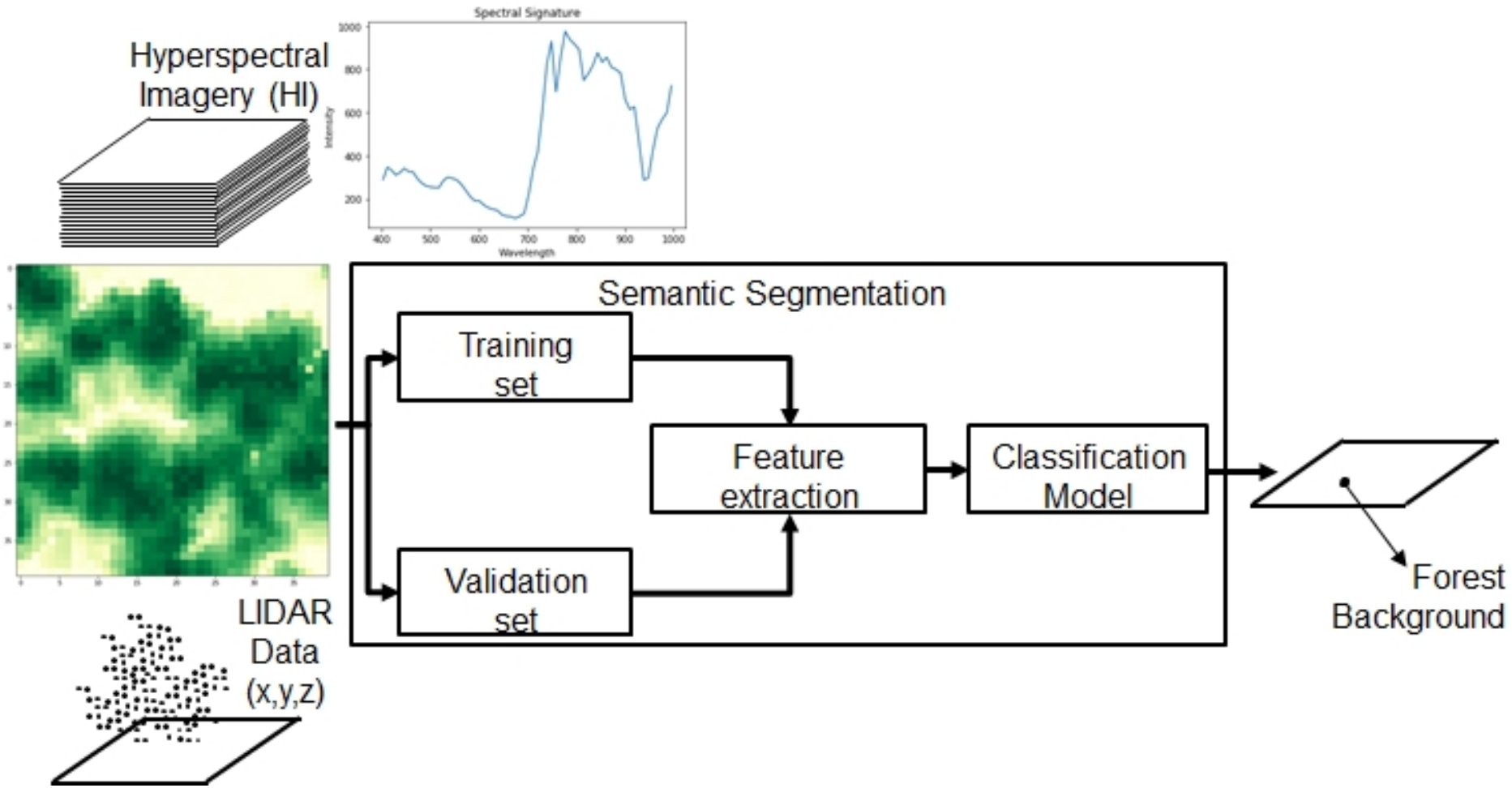


Figure: Complex forest located at the Municipality of Pellizzano

- Dimension: $40 \times 40 \times 65$
- Band range: $[403.1 - 995.3]$ nm
- Sensor resolution: $1.00m$
- Point density: $\sim 45 points/m^2$
- 65% Norway spruce (*Picea abies*)
- 25% European larch (*Larix decidua*)
- 10% Other conifers (Silver fir), Swiss stone pine and broadleaves (Silver birch, common alder, sycamore maple, rowan)

Semantic Segmentation Approach (Dechesne, Mallet, Le Bris, & Gouet-Brunet, 2017)



Results (Kandare, Dalponte, Ørka, Frizzera, & Næsset, 2017)

Table: Number of pixels

Category	Training set	Validation set
Forest	2232	1533
Background	1218	731
Total	3450	2264

Table: Binary Pixel Classification

Classifier	HI+LIDAR	LIDAR	HI	HI bands
KNN	72.62 %	76.17 %	53.73 %	55.21 %
SVM	77.12 %	77.73 %	66.12 %	66.46 %

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THANK YOU VERY MUCH FOR YOUR ATTENTION!

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