

### 3.7 Trends, Issues, and Opportunities in Unmixing-related Problems

*Nicolas Dobigeon (University of Toulouse, FR)*

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This 5-minute talk provides some insights to unmixing-related problems, even in the conventional linear mixing framework.

First, it discusses the choice of the mixing models to be used when conducting unmixing. There are plenty of nonlinear and robust models. An open question is: How and when should we choose a particular model? A tentative response has been brought for vegetated areas. Moreover, overcoming the inherent spectral variability is also a challenging question. To validate these models and the associated unmixing algorithms, no standard benchmark has been proposed. Moreover, this validation requires the availability of ground-truth data, which is not common.

Then this talk discusses non-standard algorithmic schemes and implementations. Such strategies are generally necessary to face with huge data volume. Multi-temporal image unmixing and hyperspectral video unmixing are promising research issues, which can be tackled off-line, on-line or in a distributed manner.

The question of the supervision of unmixing procedures is also discussed. Most of the research works tend to propose fully unsupervised unmixing procedure. However is it really beneficial? Indeed, in most applicative contexts, some external information is available and can be incorporated.

Finally, one wonders if there is any real interest to unmix, from an end-users point-of-view. For instance, for the mapping of a particular single material, could we design some partial unmixing techniques?

#### References

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