

# De-Mixing Audio via FluCoMa In Max using non-negative matrix factorization



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# FluCoMa: Fluid Corpus Manipulation



- Toolbox for Programmatic Data Mining of Sound Banks
- Integrating Machine Listening and Machine Learning in...
- Max, SuperCollider & Pure Data
- Learning Resources ([learn.flucoma.org](https://learn.flucoma.org))
- Discourse Community ([discourse.flucoma.org](https://discourse.flucoma.org))

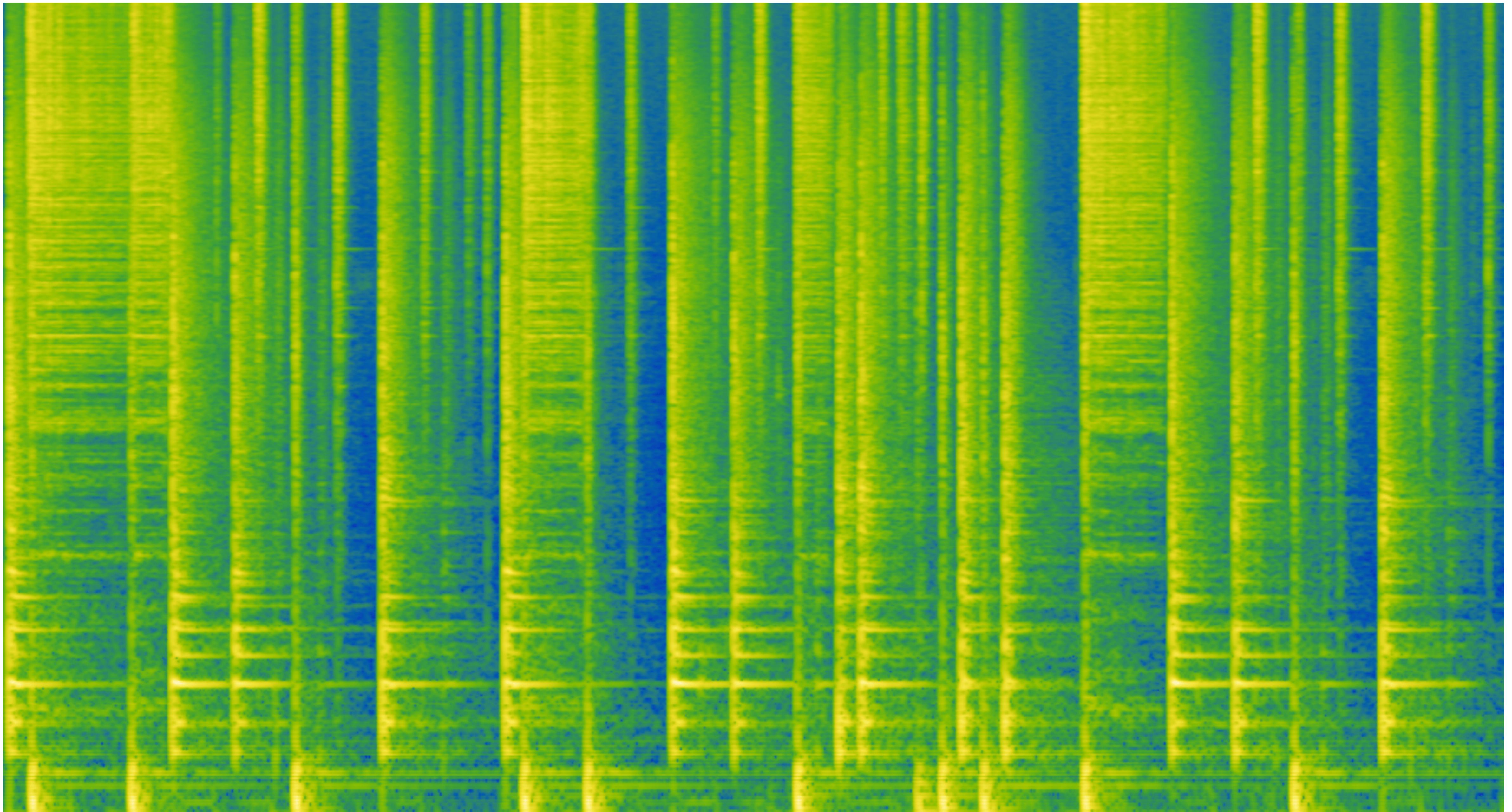


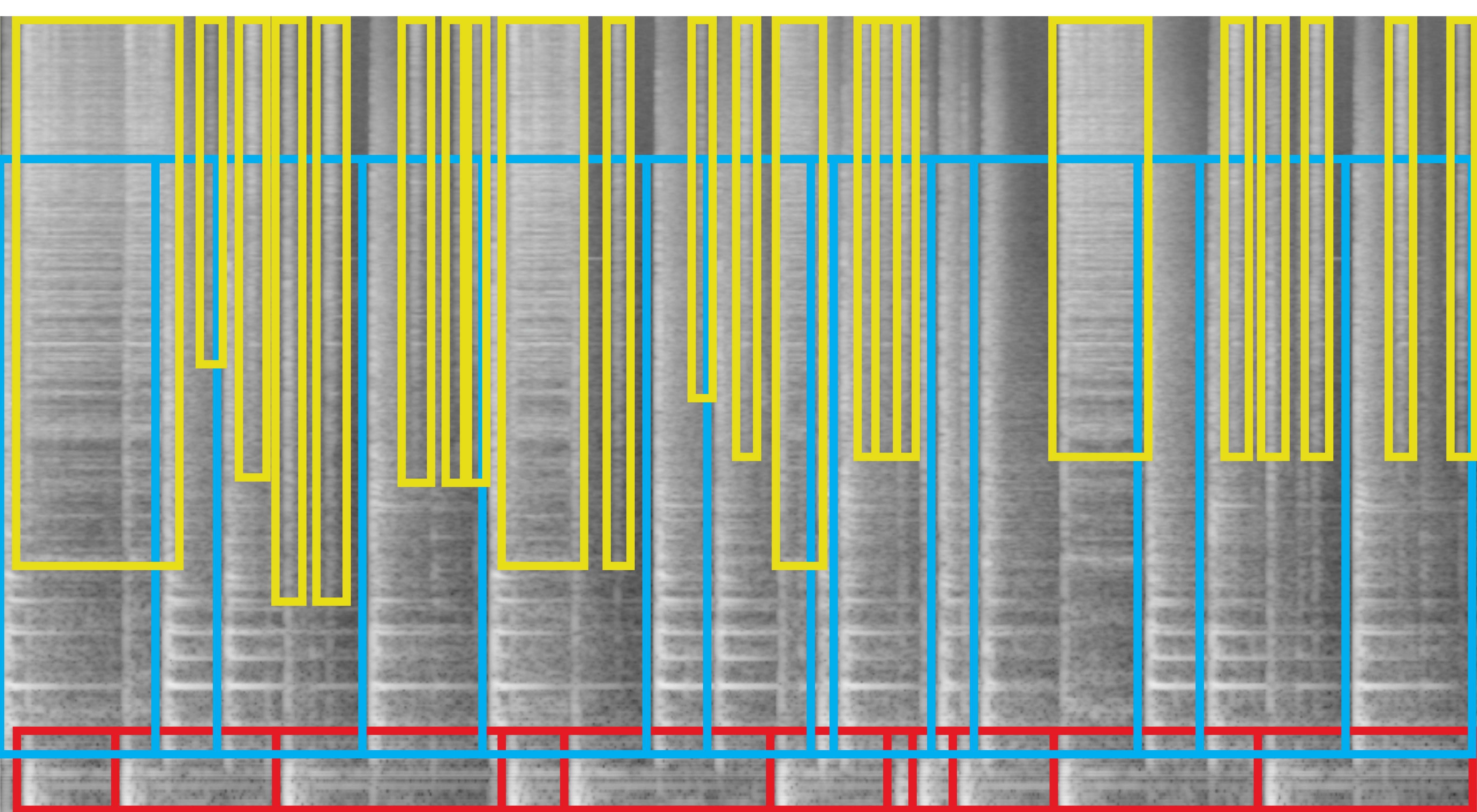
Ted Moore, (James Bradbury, Owen Green, Jacob Hart, Gerard Roma, & Pierre Alexandre Tremblay)

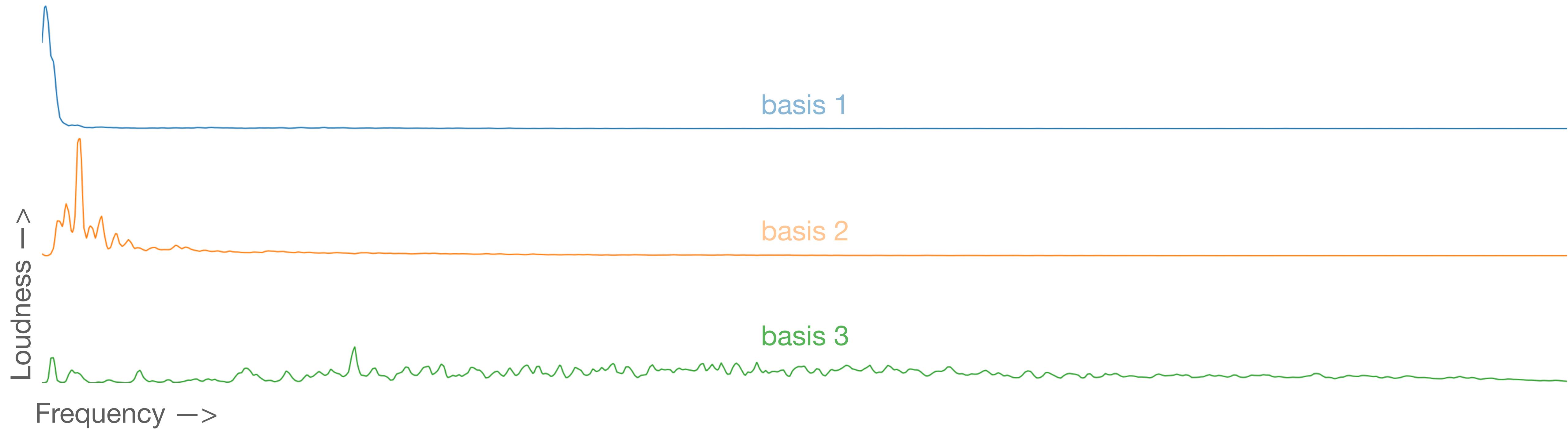
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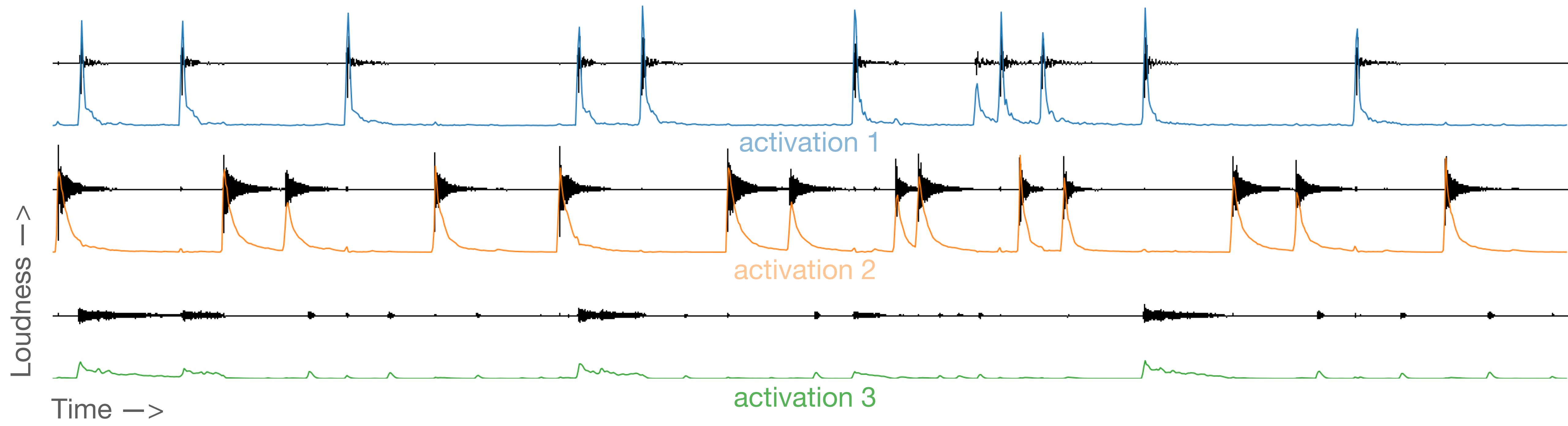
# Plan for Today

- Audio Decomposition (De-Mixing) with `fluid.bufnmf~`
  - Spectral Templates (Bases)
  - Time/Loudness Curves (Activations)
- Real-time spectral filtering
- Real-time sound-object identification
- Seeding the NMF process
- Advanced uses...



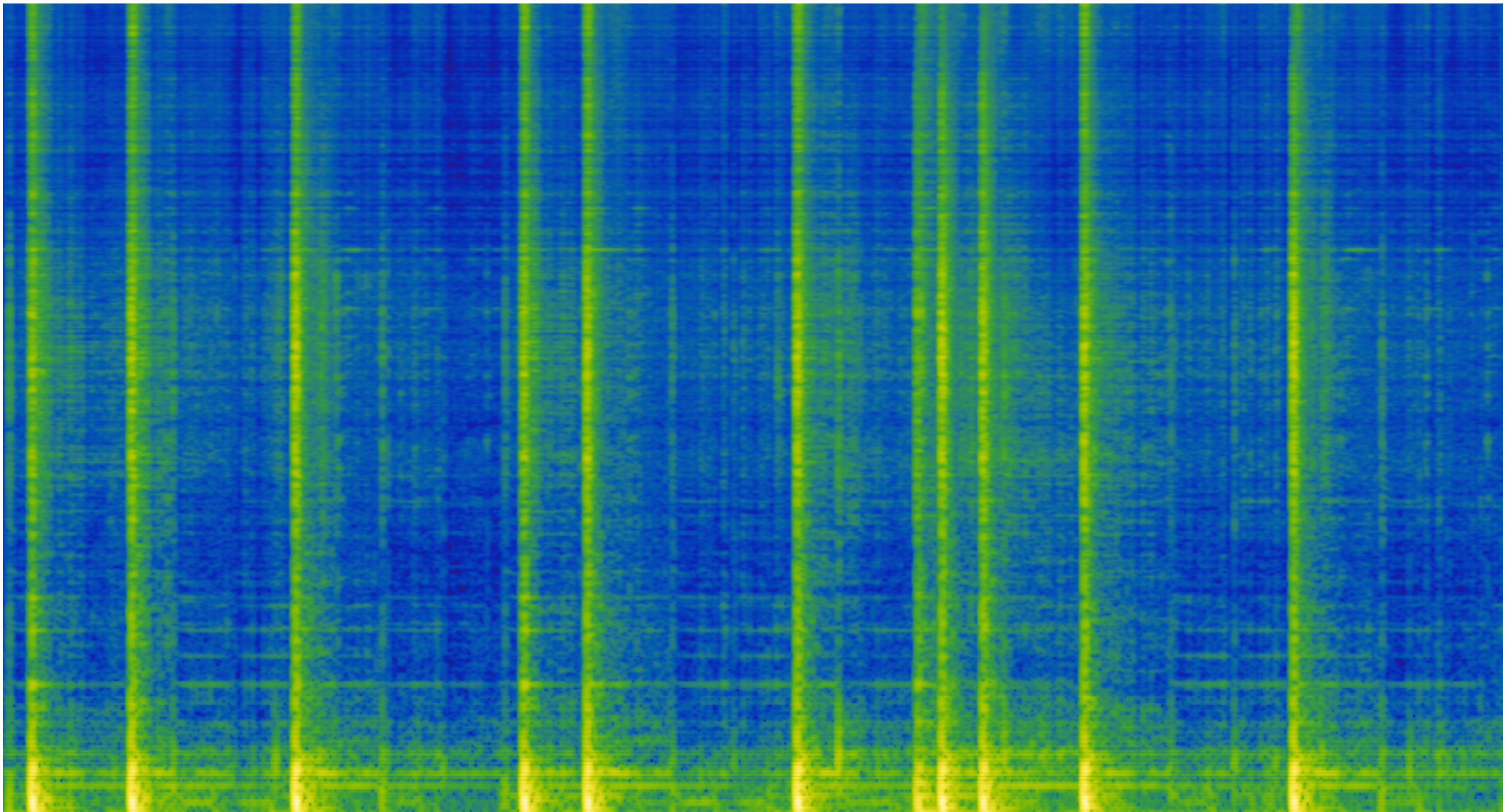


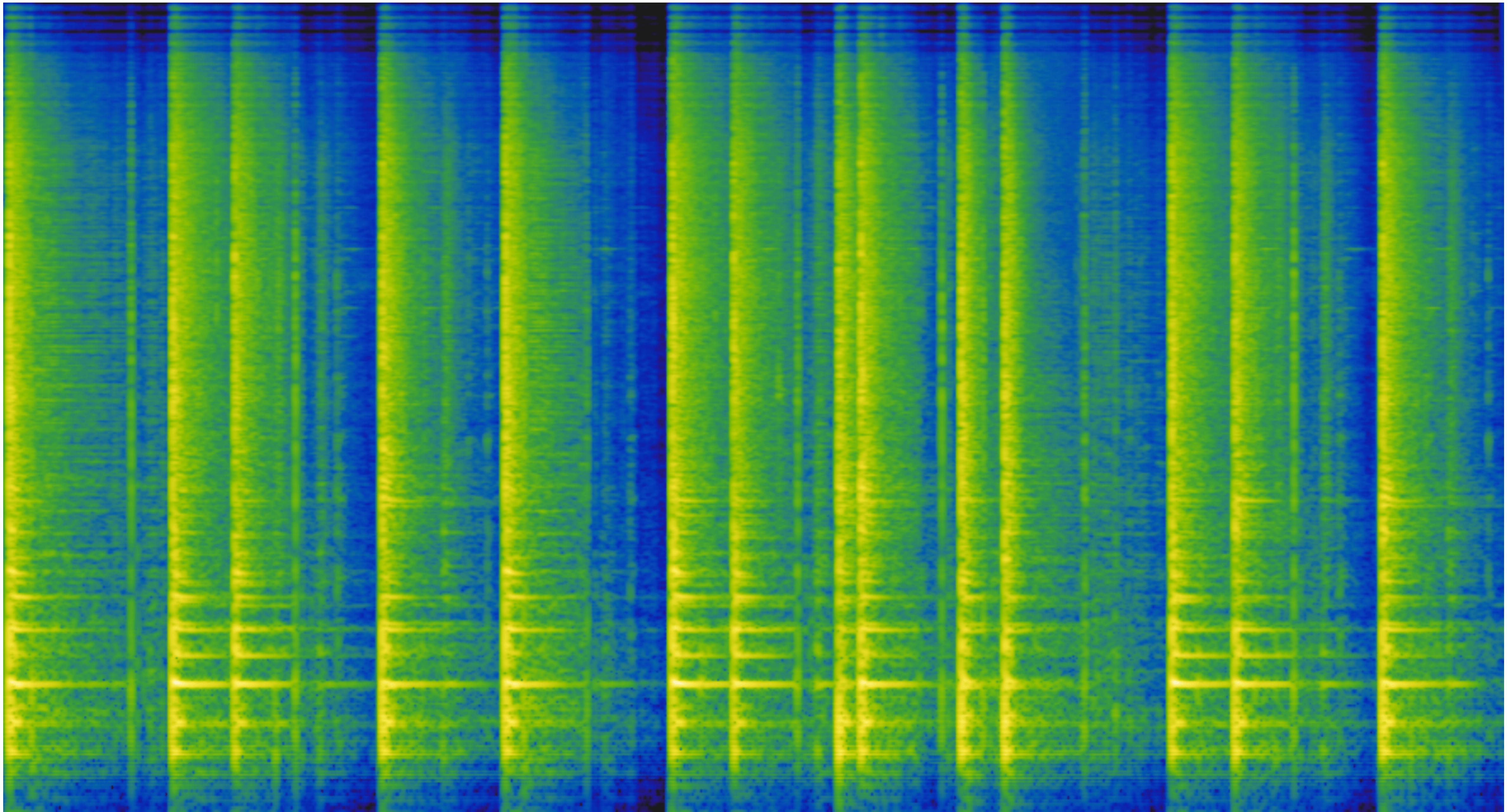


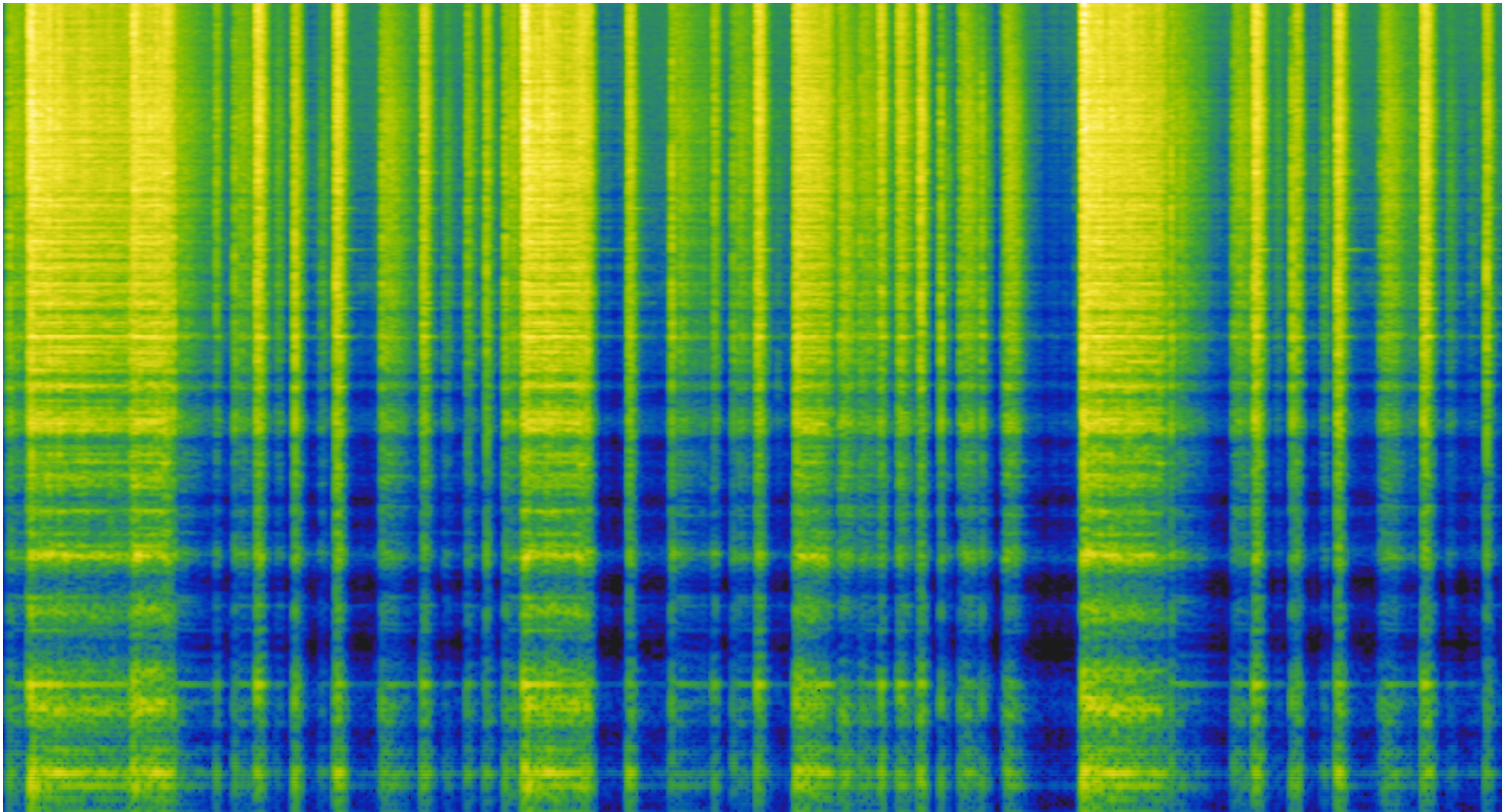


# Non-negative Matrix Factorization

- Unsupervised Machine Learning Algorithm
- Seeded with randomization and iteratively improves
- Uses stochastic gradient descent
- Often used in recommendation systems (Netflix, Spotify, etc.)









*Herbig-Haro*  
by Olivier Pasquet

[learn.flucoma.org/explore/pasquet](https://learn.flucoma.org/explore/pasquet)