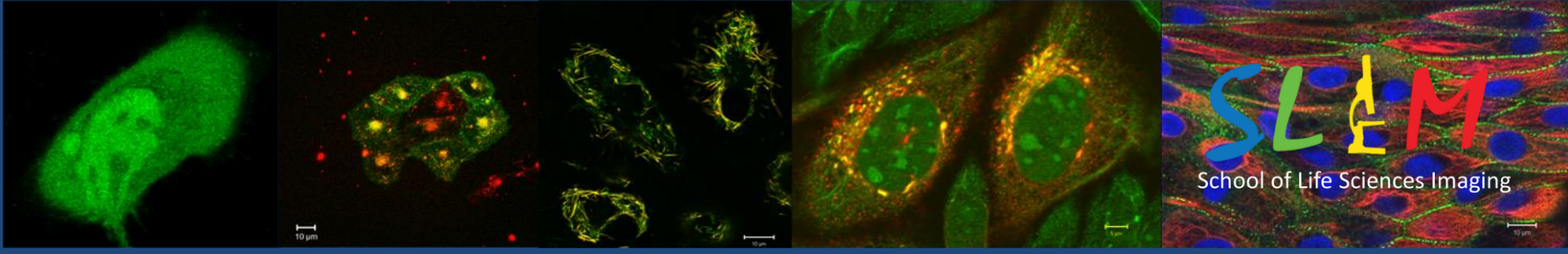

Machine Learning using Ilastik (Chris Gell)

What is ML?

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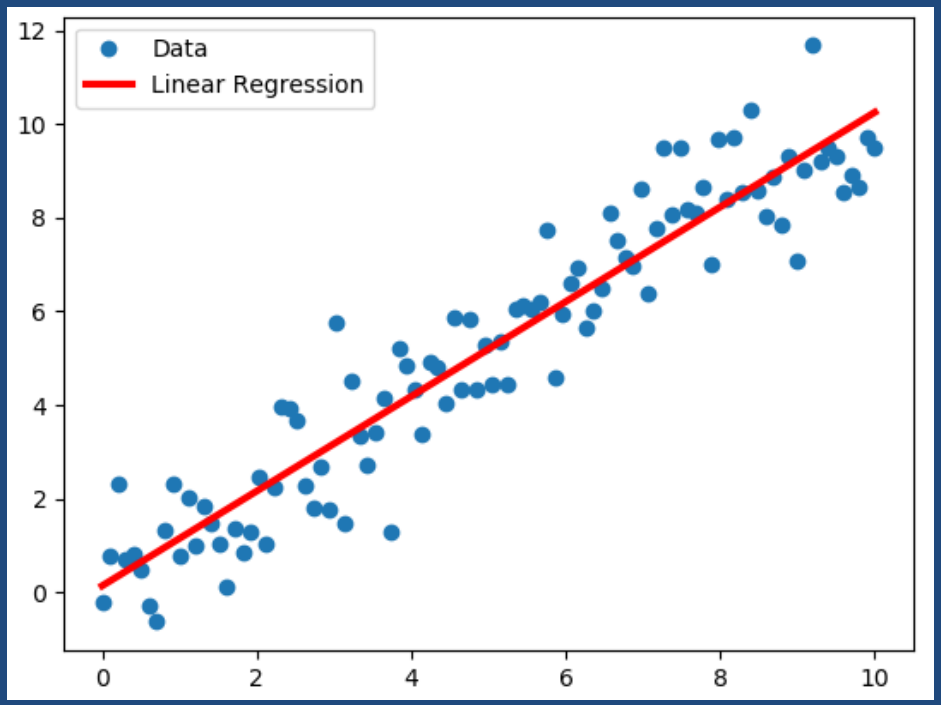
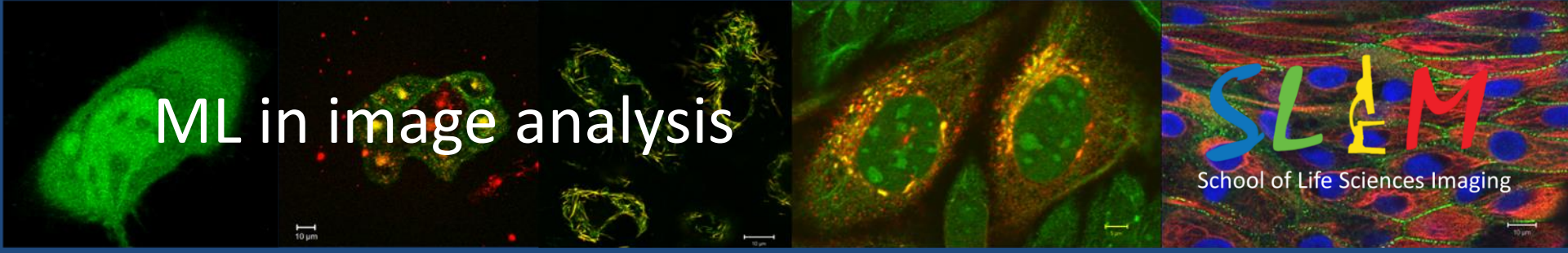
ML is nothing new, you've probably all used ML methods!

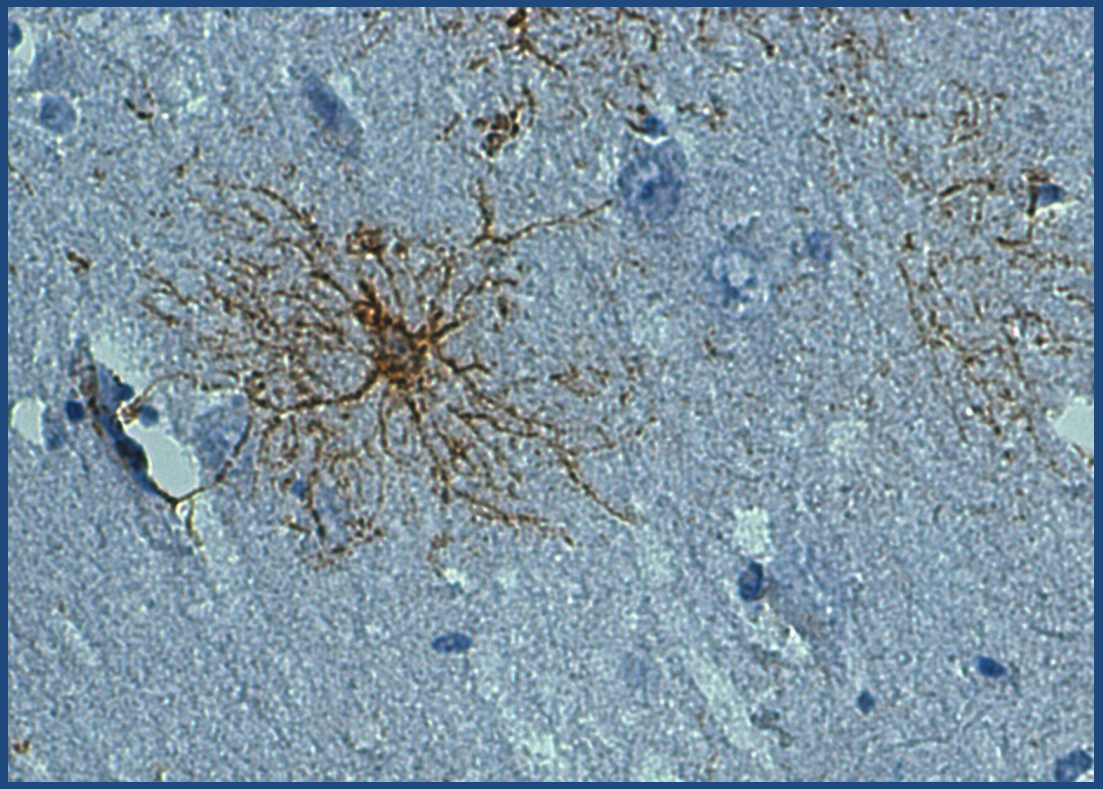


- want to characterise a phenomenon (relationship)
- have an equation (feature)
- have input (data)
- have a training algorithm (often least squares)
- output is the relationship between variables

ML in image analysis



DAB staining



- colour
- texture
- edges

Ilastik can introduce ML into you workflow now.

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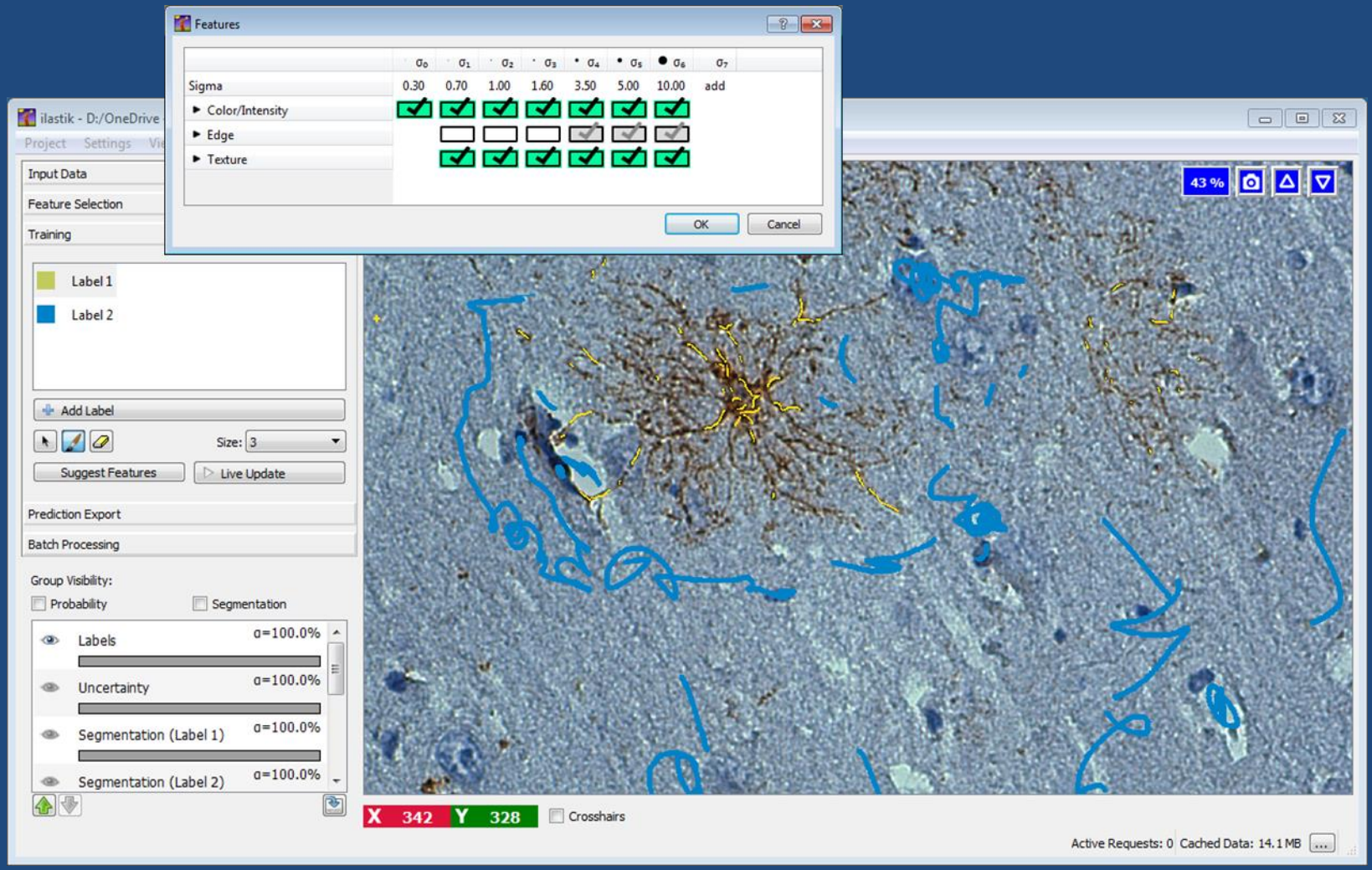
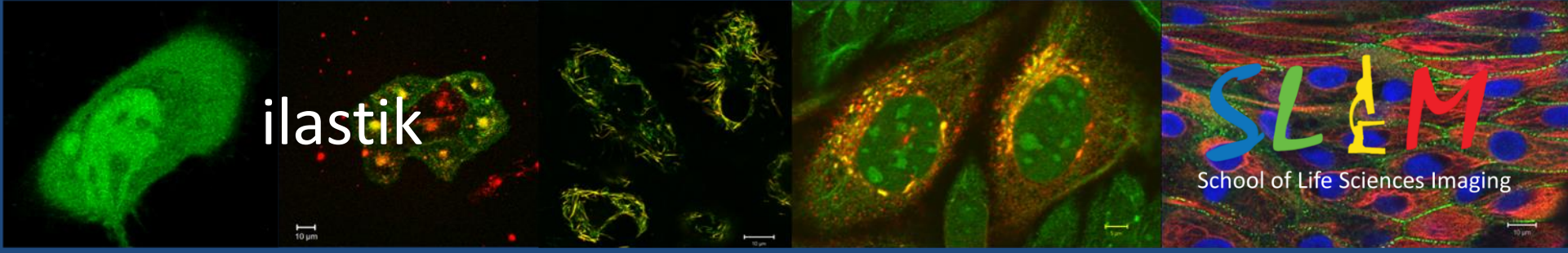
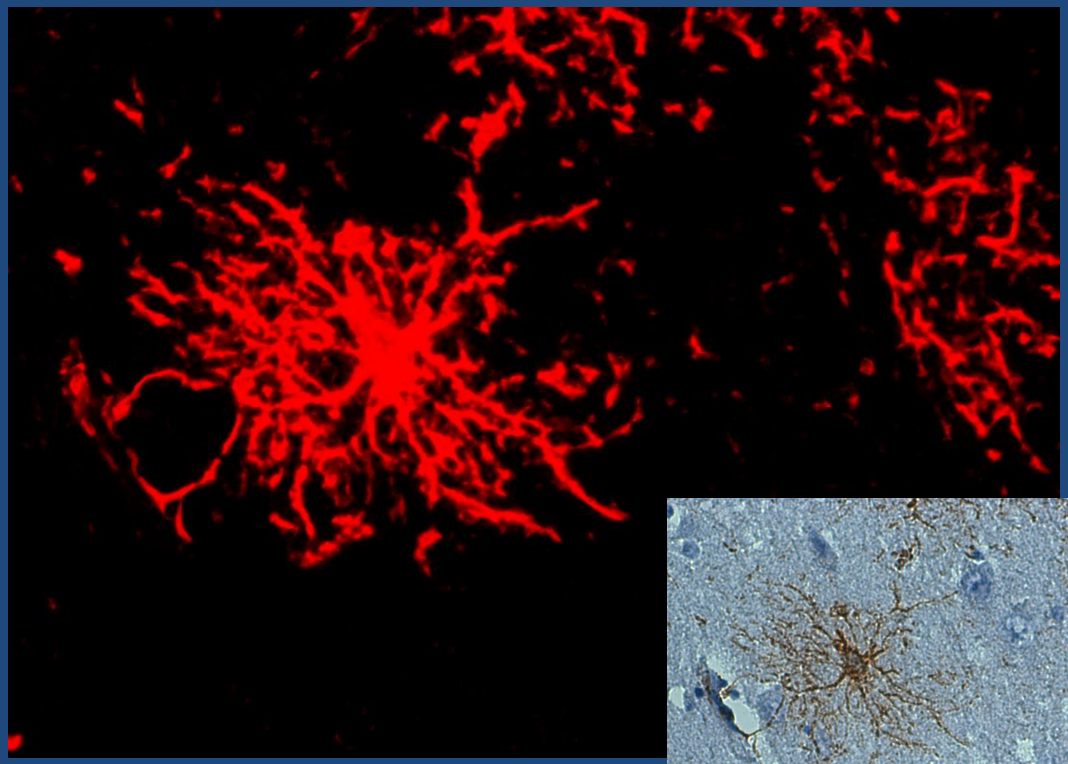
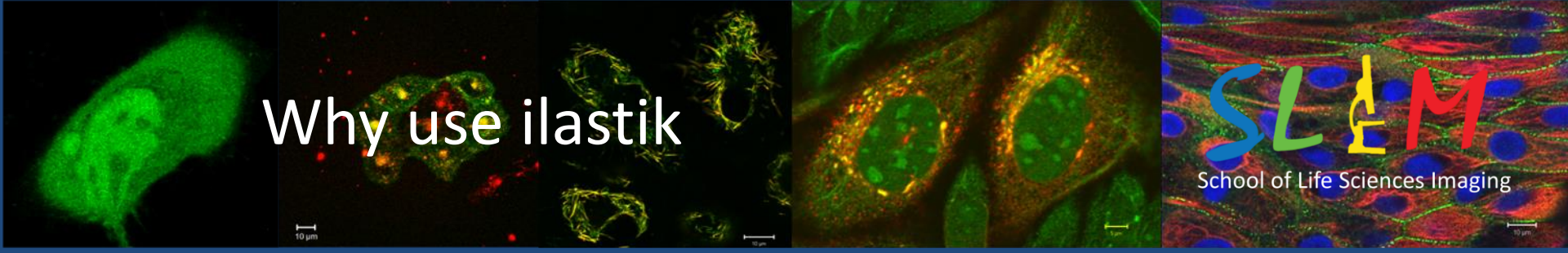




probability map of pixel classification → passed to (e.g.) Fiji, CP etc.





Pros

- Simplify existing workflows
- Intuitive interface
- Implement ML now – it's trendy!
- Open up new and faster analysis
- Fiji integration

Ready for:

- pixel classification
- object classification
- tracking
- 3D

Cons

- Need decent hardware
- Conceptually challenging (?)
- Training time
- Fiji (or other dependant)
- Checks with a ground truth (especially as conditions vary)

Ilastik more information

http://ilastik.org/

https://forum.image.sc/