



Computational  
Foundry



# My Continued Voyage with ML and Information Visualisation

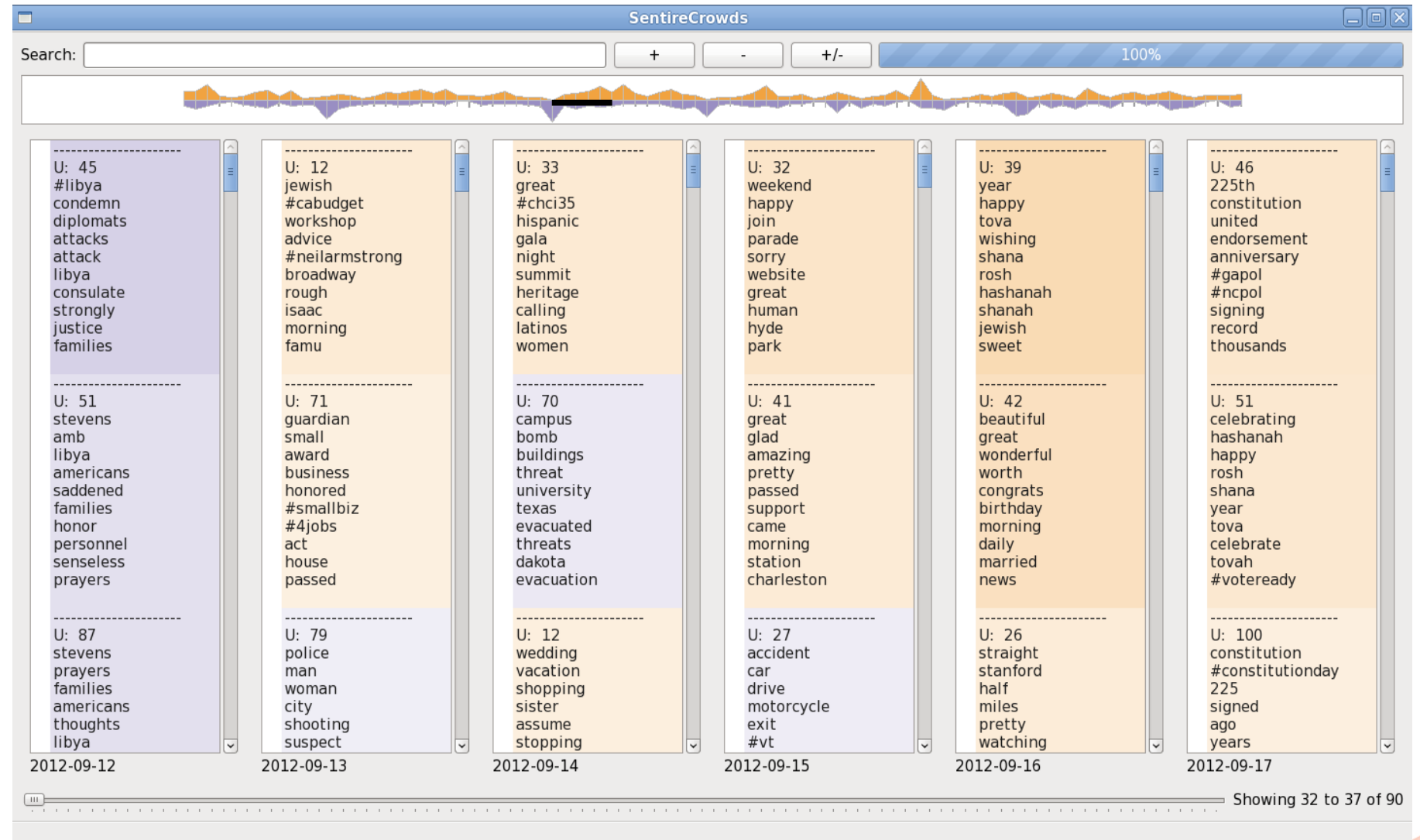
Daniel Archambault, Swansea University

# My Story of ML Meets VIS

- Post-doctoral studies in graph mining lab (University College Dublin)
  - One of two visualisation people in group
  - Started SocMedVis at (AAAI ICWSM)
- During (and after) a number of ML & VIS events
  - Bridging Information Visualization with Machine Learning (seminar 15101)
- Output to have tutorial at VIS venue
  - EuroVis events in 2016 and 2017

# Initial Contact with MLkind

- Oh look! This is cool!  
We can see the output of algorithm X!
  - Can we have it in 3D?
- Visualisation as output is a natural place to start



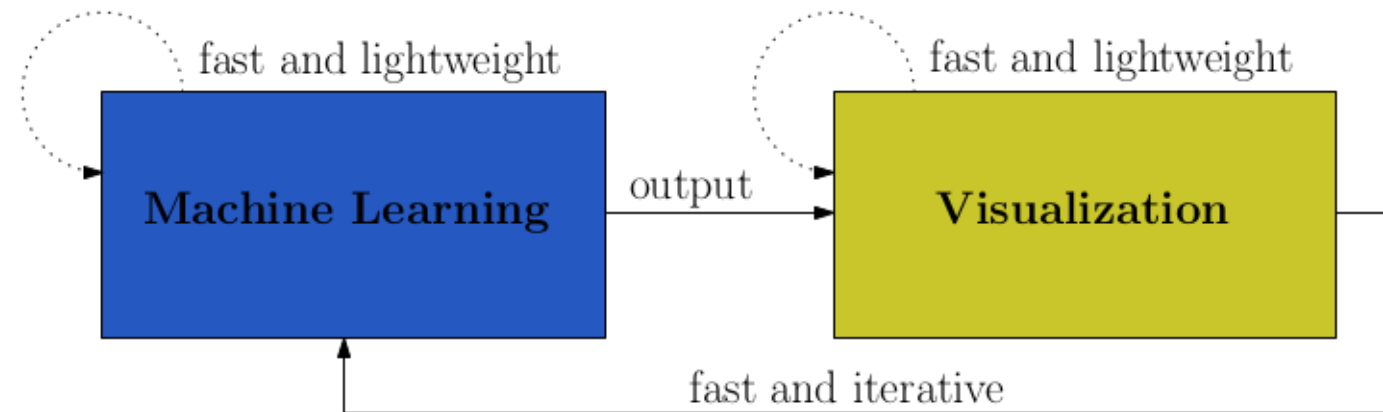
A. Brew, D. Greene, D. Archambault and P. Cunningham, "Deriving Insights from National Happiness Indices," 2011 IEEE 11th International Conference on Data Mining Workshops, Vancouver, BC, 2011, pp. 53-60.

# ML Evaluation is Different

- Evaluating machine learning systems is metric-based
  - Classic precision and recall metrics
  - In graph mining, mutual information measures to ground truth
- No ground truth, use network attributes
  - Run analysis method using only network structure
  - Check attributes to find patterns to argue it is good

# Initial Working Model

- Okay, let's just go faster

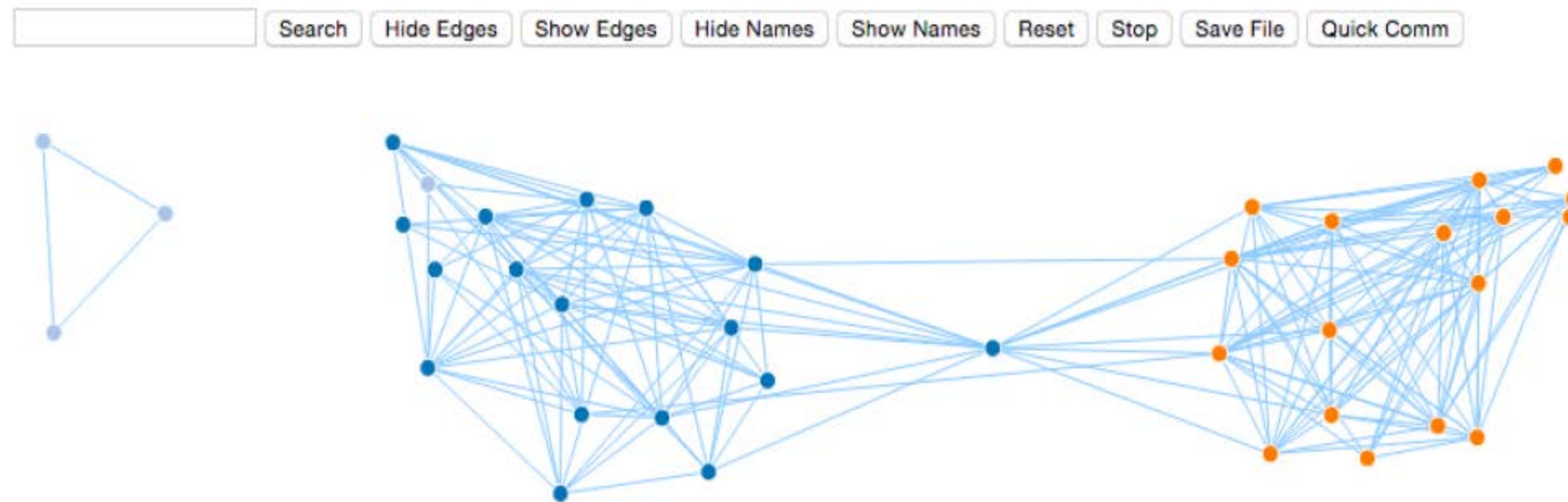


- Good, but ... we can do better



# What Would a Human Do?

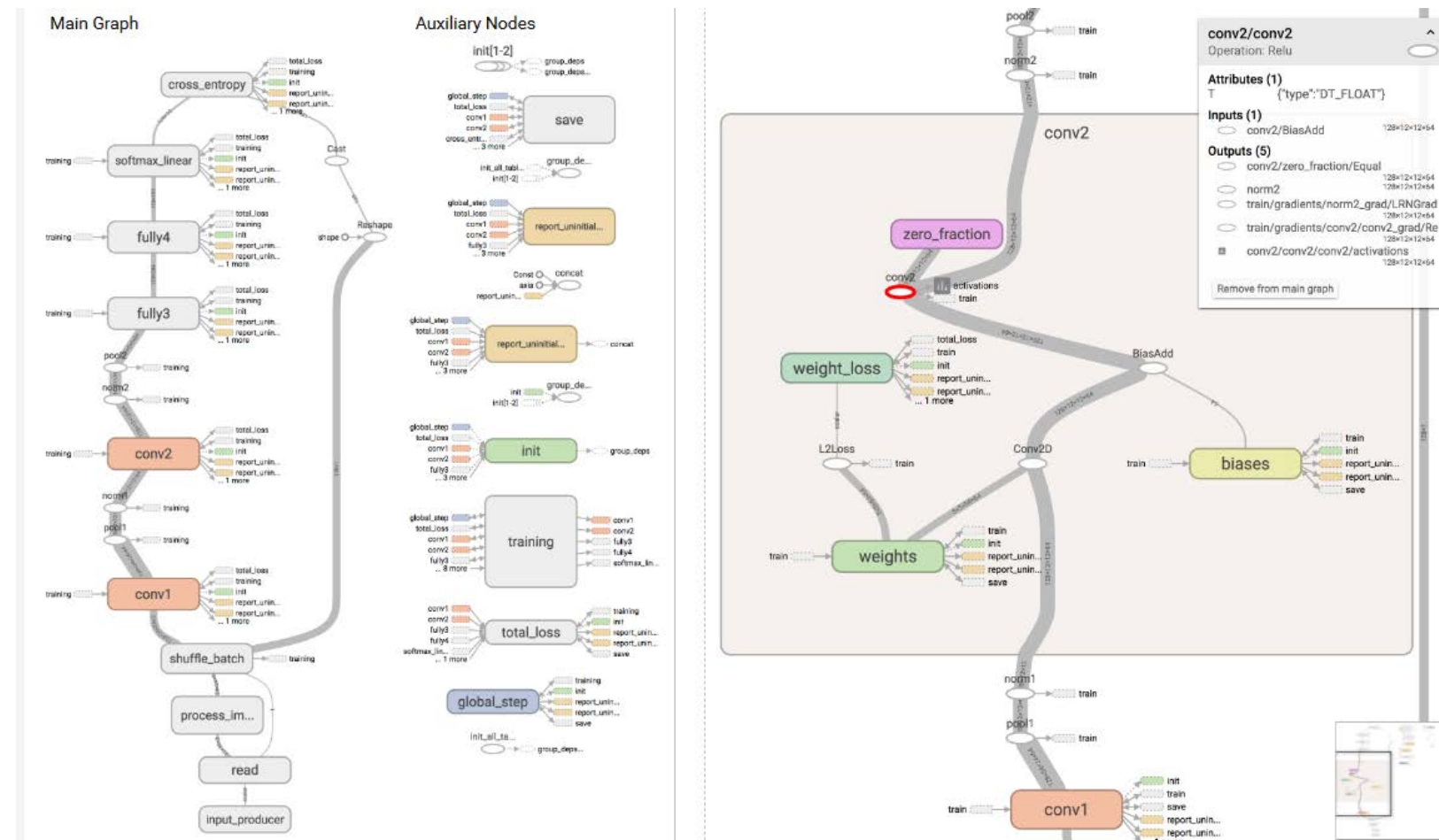
- ML, in some senses, tries to automate what humans would normally do. How about human evaluation of ML?



*A. Lee and D. Archambault. 2016. Communities Found by Users -- not Algorithms: Comparing Human and Algorithmically Generated Communities. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 2396-2400.*

# Opening the Box

- Very exciting work that other panelists can speak about



# The Future is Bright

- Visualisation as output is okay but greater benefit if we find new ways to work with them
- Evaluation methods are different, but may be complimentary
- ML people are fun to work with