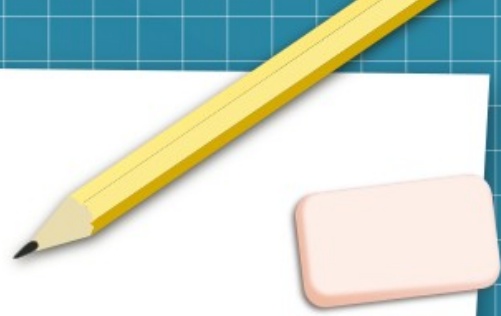




Nuts and Bolts: Analyzing the Development of Technological Breakthroughs Through Clustering

Jayden Huang

Background



- What is a patent?
- What are patent citations?
- A quick example...

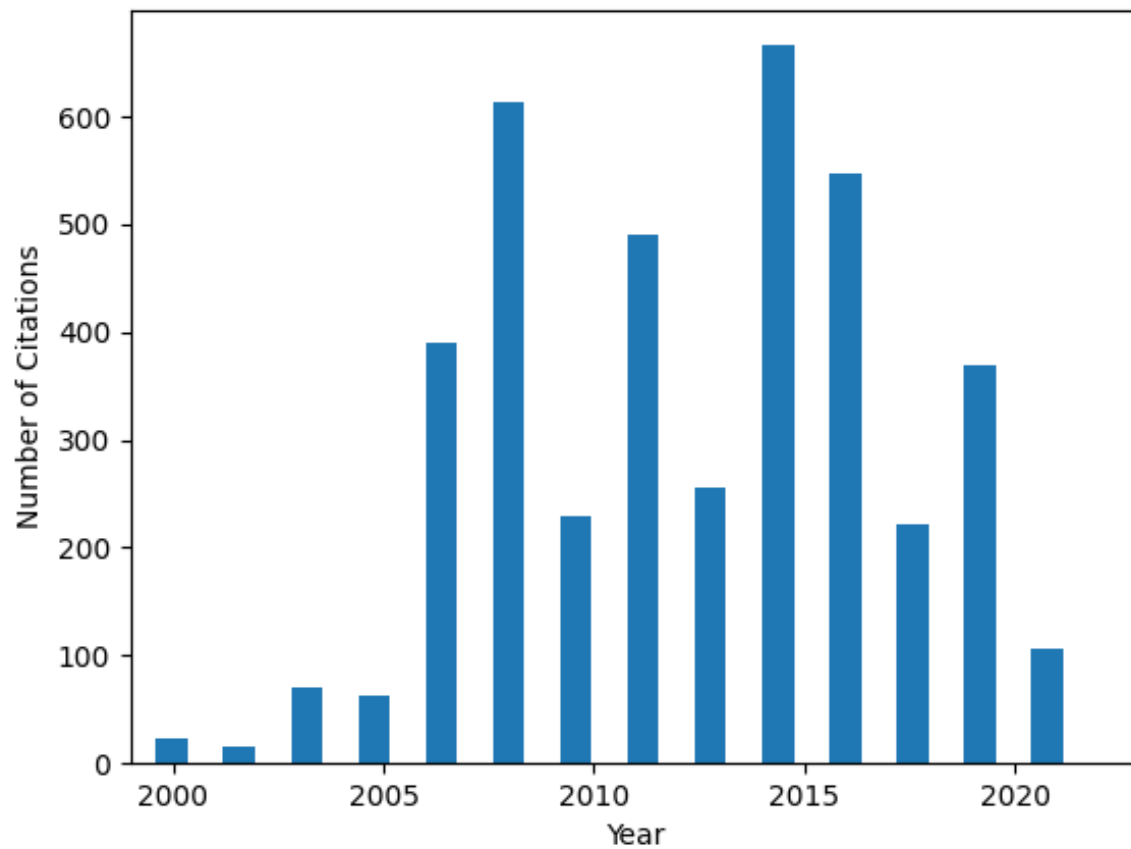


Methodology

- Patent Database
- Longitudinal Analysis
- Clustering Algorithm

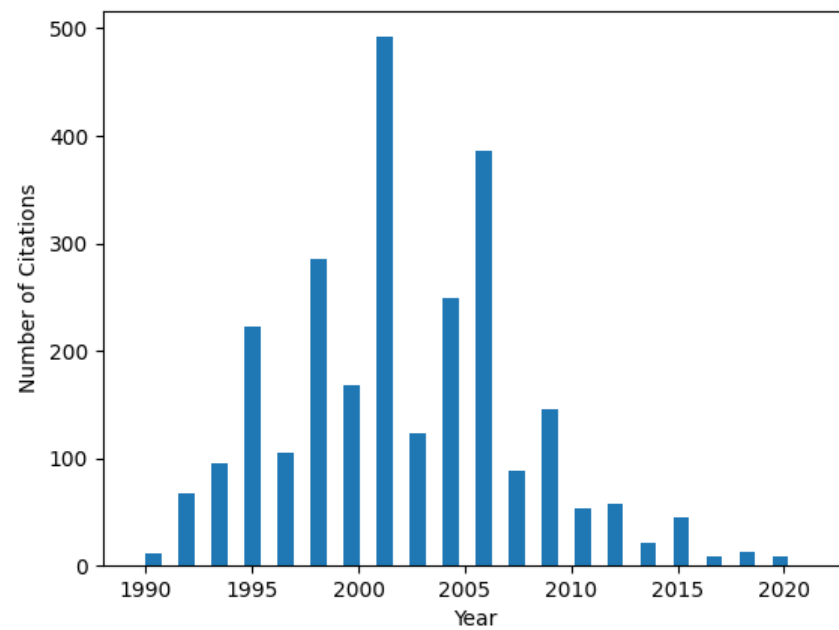


Patent Citations for US Patent US-6323846-B1

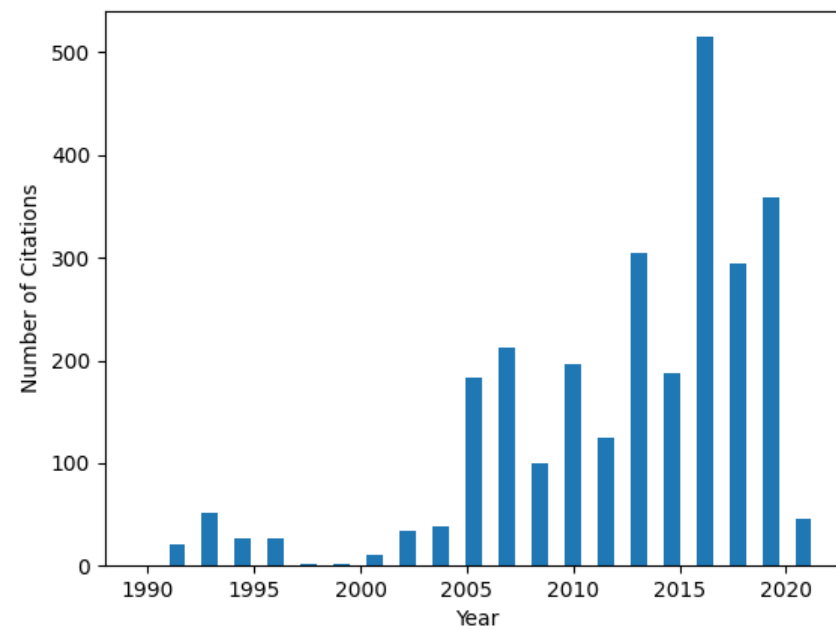


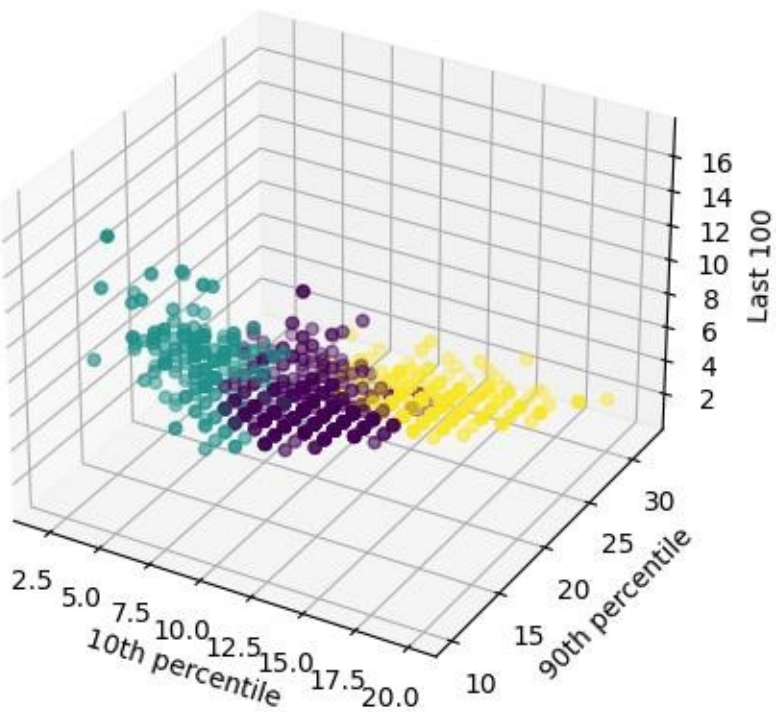


Patent Citations for US Patent US-5103459-B1

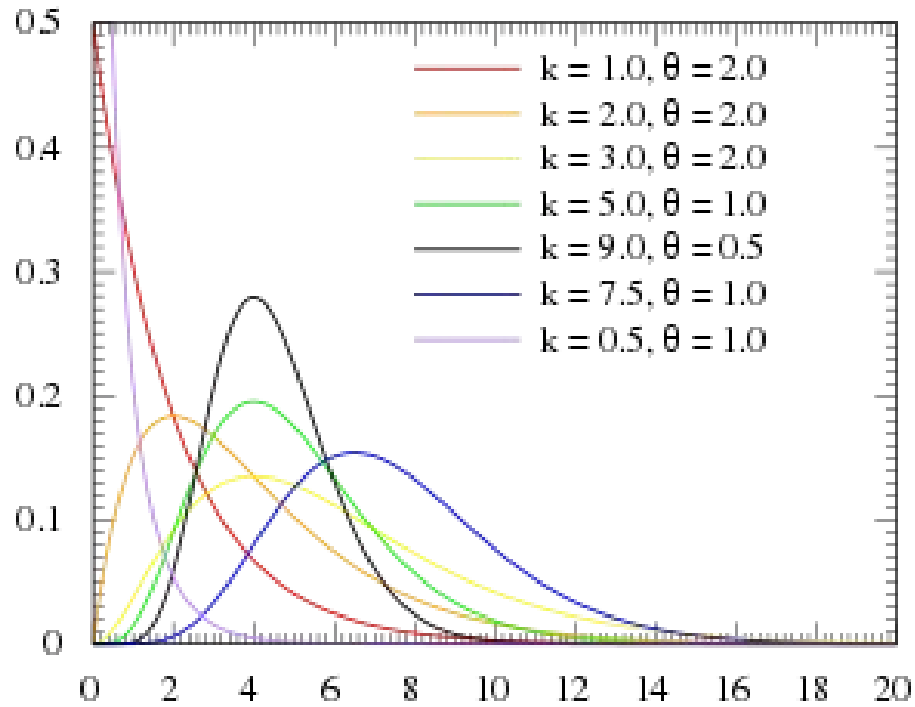


Patent Citations for US Patent US-5084057-A





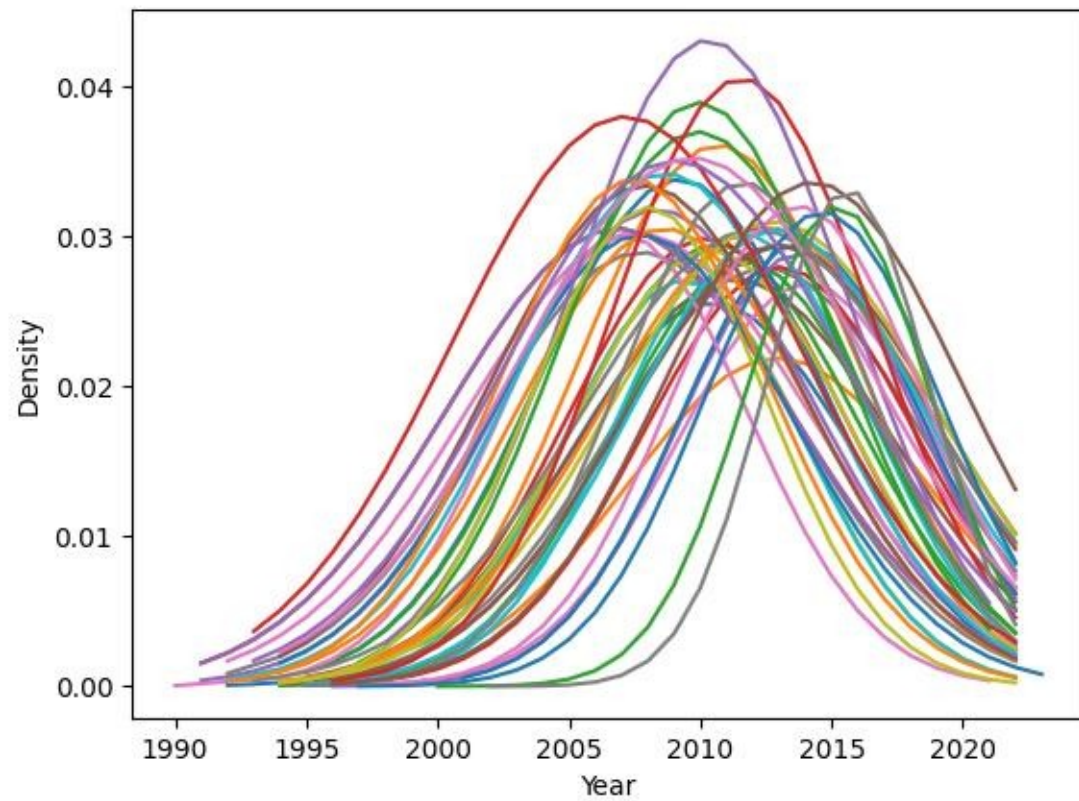
$$\sum_{i=0}^n \min_{\mu_j \in C} (||x_i - \mu_j||^2)$$



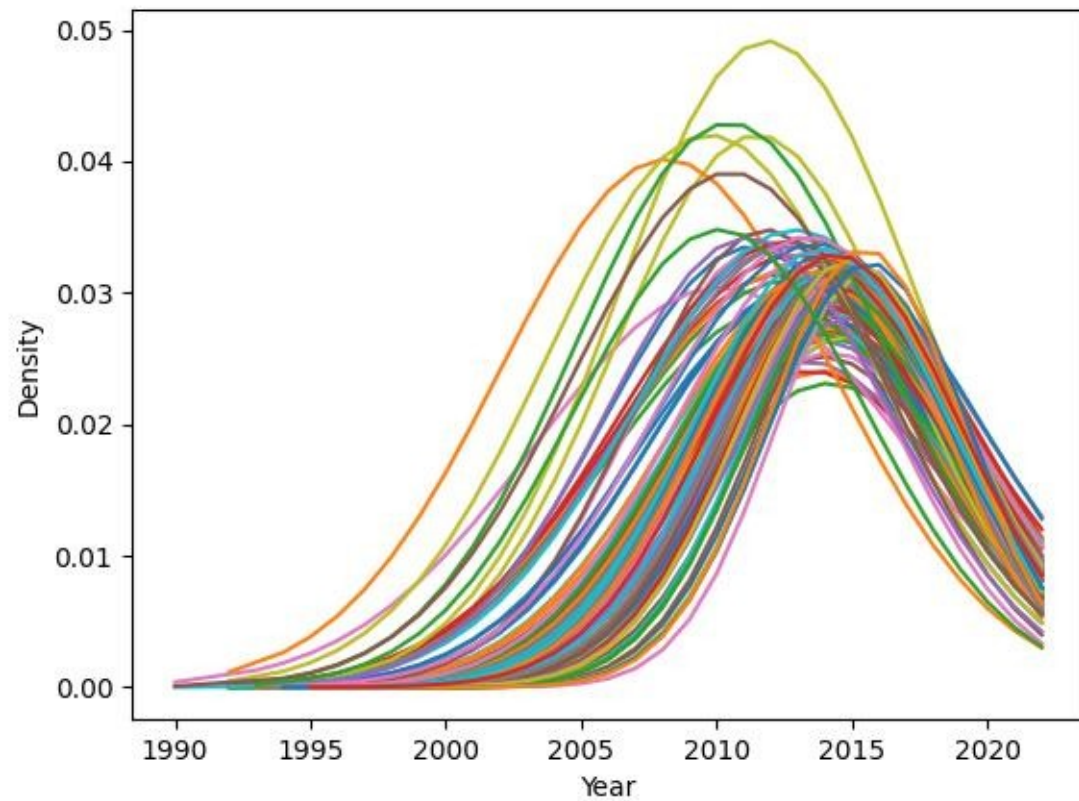
$$\alpha = \frac{E^2[X]}{\text{Var}(x)}$$

$$\beta = \frac{E[X]}{\text{Var}(x)}$$

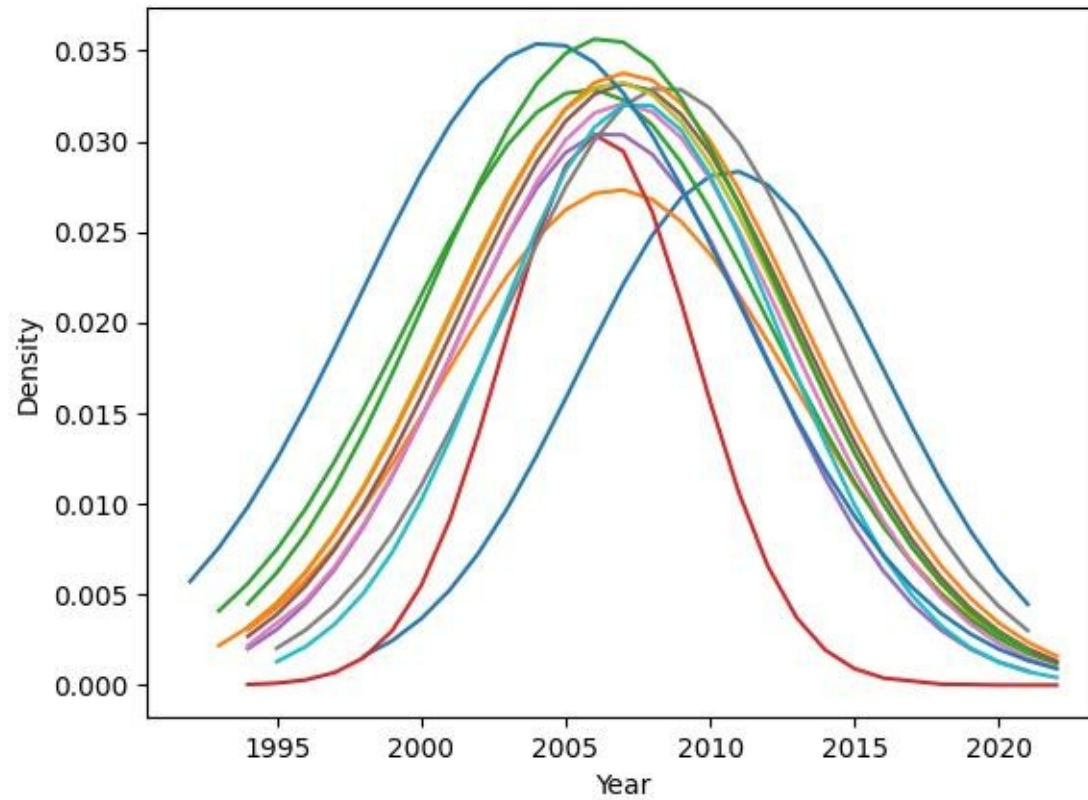
Cluster 1



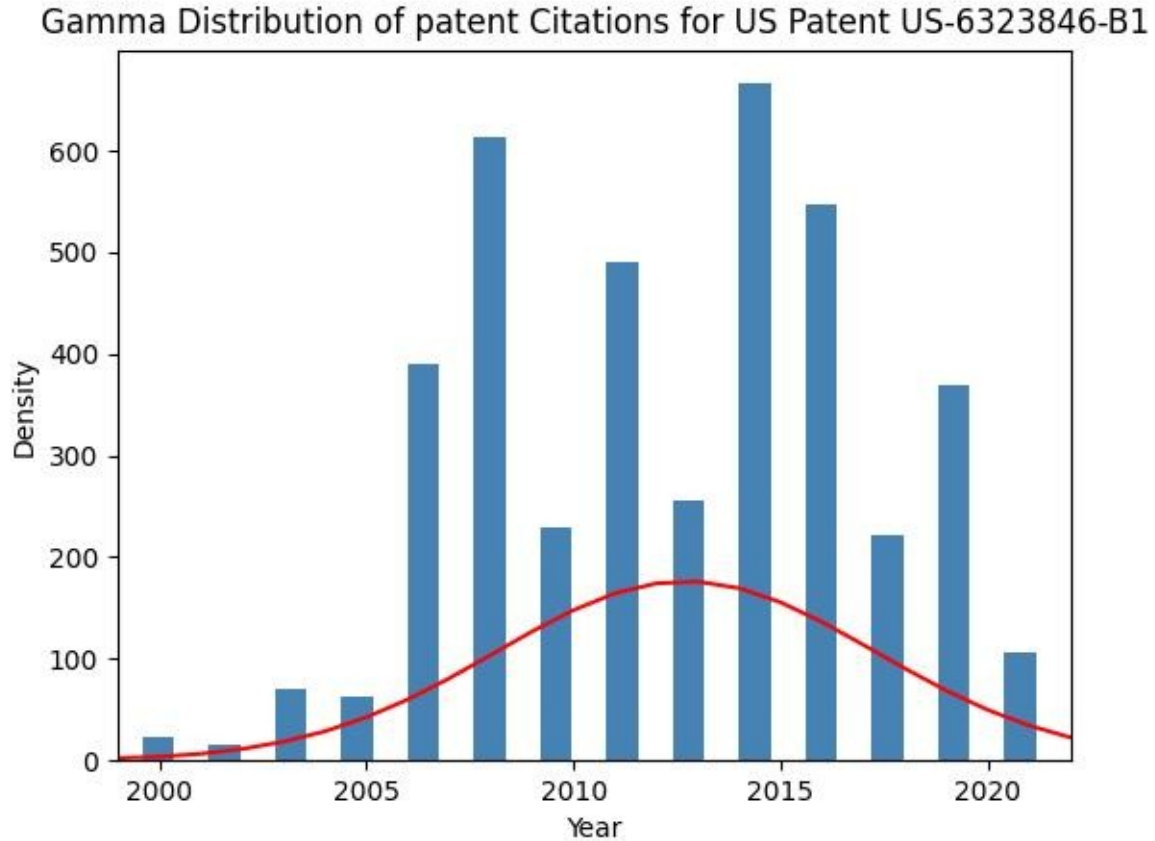
Cluster 2



Cluster 3



Back to basics...



Results





Thank you for listening!

Please ask questions!

