What we covered!

- We started with challenges in **Visual Recognition**
- Some intuition about how to go about **designing features** (SIFT, HOG)
- Local Features to **Global Features** (Bag-of-Words, Spatial Pyramids)
- **Discriminative Models** (SVM, concepts of margin)
  - Feature Maps: Kernels
  - Speeding SVM using additive kernels.
- **Generative Models** (Naïve Bayes, pLSA, LDA)
  - Generative vs Discriminative Models
  - Graphical Models
  - Intuition of topic models.
- **Object Detections**
  - Dalal and Trigs Object Detection.
  - Poselets
  - PASCAL VOC
- **Were not able to cover**
  - Detailed object detection
  - Image Retrieval
  - Semantic Spaces
  - Cross-modal Retrieval

One day…

Prof. B. S. Manjunath

Generative

Discriminative

Object Segmentation

{Which pixels are from the object}

LARGE Scale Vision

{Billions of images}

{Thousands of tags}

Natural Image Statistics

{How is the data truly distributed}

A picture is worth a thousand words.

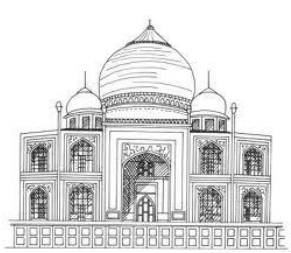
Which words?

Multi-Label Classification

{Correlation between Class Labels}

{Hierarchy of Labels}

High Intra Class Variation



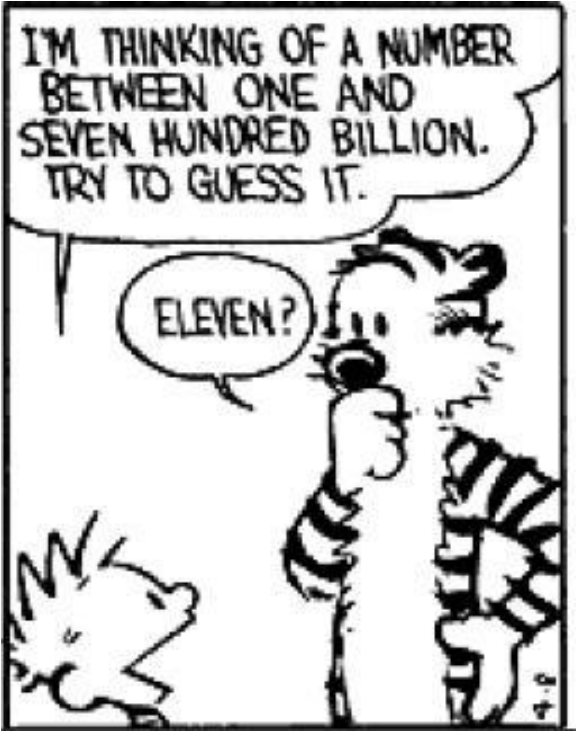
Fine-Grained Recognition

{Lotus or Water Lily}

{What bird is it?}

Sparse Training

{Learn Class models from one/few image}


I'M THINKING OF A NUMBER BETWEEN ONE AND SEVEN HUNDRED BILLION. TRY TO GUESS IT.
ELEVEN?

NOPE. GUESS AGAIN.
SIX MILLION AND FOUR.

NOPE. GUESS AGAIN.
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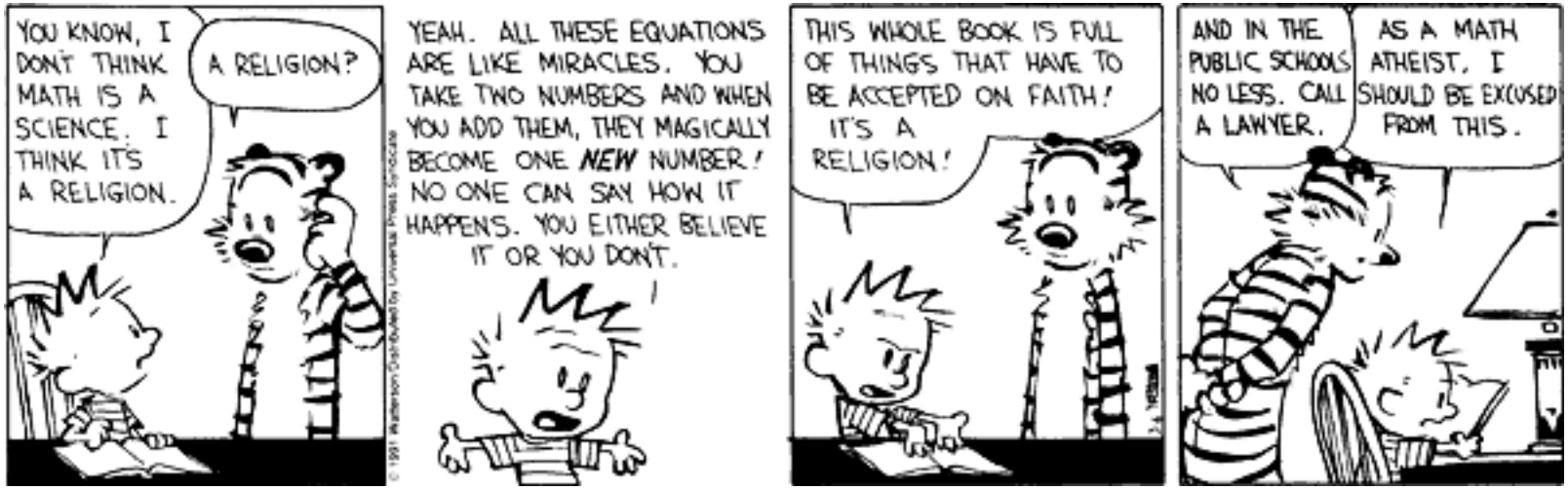
WHAT'S THE MATTER. DON'T YOU LIKE GAMES ??

HOW CAN OUR TIME BE UP?! I JUST DID THE FIRST PROBLEM ON THIS QUIZ! WHERE DID THE TIME GO?!
© 1990 Universal Press Syndicate
GUESS! GUESS! PICK RANDOM NUMBERS! MAYBE A FEW WILL BE RIGHT BY SHEER LUCK! 15! 104! 3! 27!
HAND IT IN, CALVIN. YOUR TIME'S UP.
SIGHHHH
DON'T FORGET WE HAVE A BET ON WHO GETS THE HIGHER GRADE.
THE BET'S OFF! I DON'T GAMBLE! NO BETS!


YOU KNOW, I DON'T THINK MATH IS A SCIENCE. I THINK IT'S A RELIGION.
A RELIGION?
YEAH. ALL THESE EQUATIONS ARE LIKE MIRACLES. YOU TAKE TWO NUMBERS AND WHEN YOU ADD THEM, THEY MAGICALLY BECOME ONE NEW NUMBER! NO ONE CAN SAY HOW IT HAPPENS. YOU EITHER BELIEVE IT OR YOU DON'T.
THIS WHOLE BOOK IS FULL OF THINGS THAT HAVE TO BE ACCEPTED ON FAITH! IT'S A RELIGION!
AND IN THE PUBLIC SCHOOLS NO LESS. CALL A LAWYER.
AS A MATH ATHEIST, I SHOULD BE EXCUSED FROM THIS.