



# AI DRIVEN ENTERTAINMENT

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# CAREER JOURNEY

- 2001-2002 Undergrad / Masters
- 4-6 Years : Natural Language Understanding
  - Text Mining
  - Speech + Dialog Processing
  - Multimedia = Image + Audio + Video
- Humor Analysis in FRIENDS (2006)
- Challenges for New-Comers
- How to approach AI / ML or Data Science Projects





# BRIEF HISTORY

- Class Project: Affective Dialogs
- Sentiment Analysis in Dialogs
- Text Datasets:
  - Product / Movie Reviews
  - Social Media Posts





# DIALOGS

- Datasets for Dialogs Research
- Phone Conversations or Call-Logs
- Customer Care Help-Line
  - Product Complaints / Refunds / Tech Support
- Very few Examples in 1-2 hr Recording
- Subtle or Mildly Expressed
- Manual Annotation
  - Time-Consuming
  - Subjective





# SENTIMENTS IN DIALOGS

- Training Data: Ample of Examples
- Annotations: Train + Evaluation
- Television Program: F.R.I.E.N.D.S.
- Spoken Conversations (Dialogs)
- Humor or Laughter as Sentiment





# HUMOR ANALYSIS

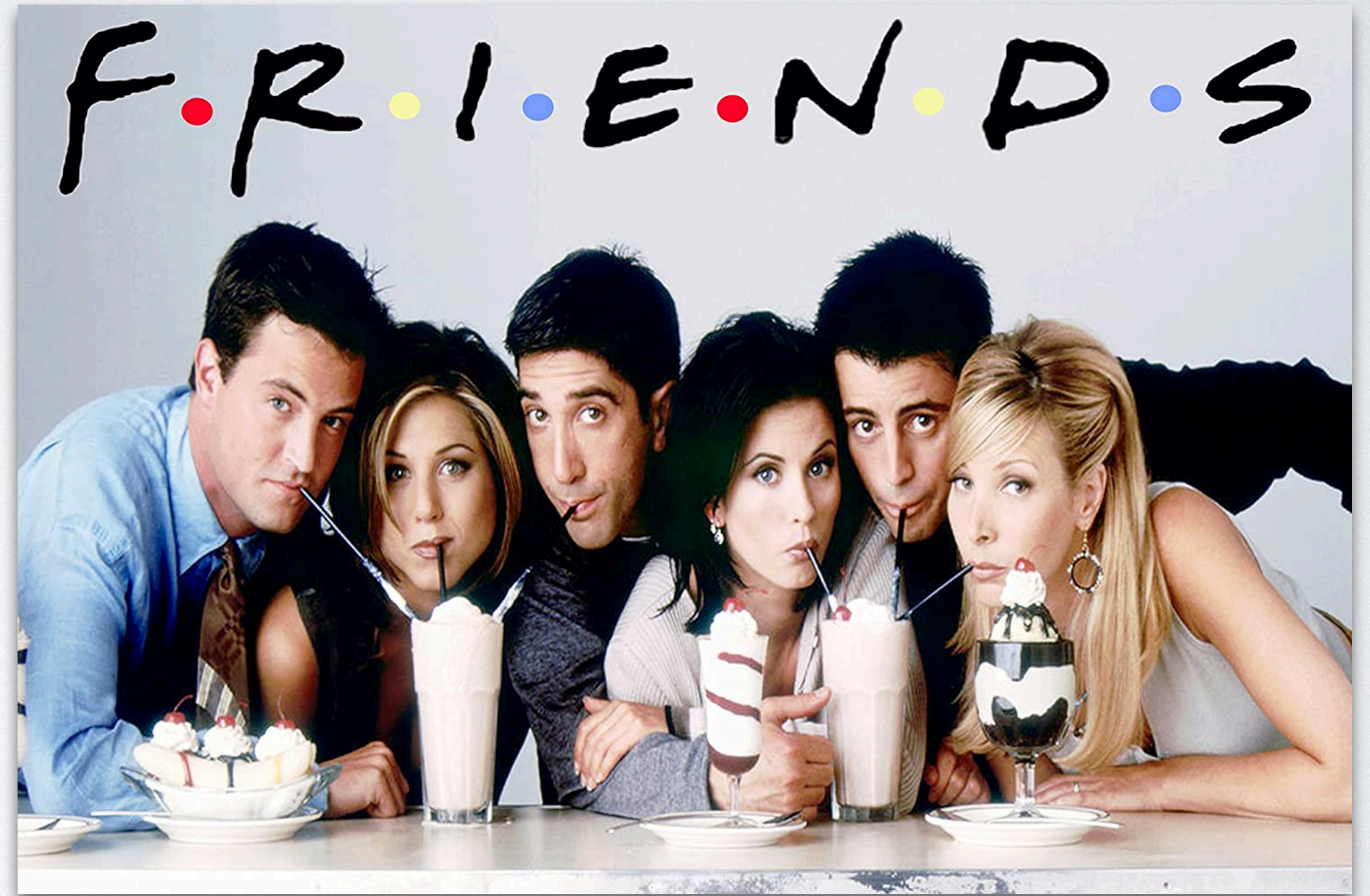
- Jokes followed by Laughs
- Pre-Labeled Data
  - No need for Manual Annotation
  - Decide What's Funny or Not Funny
- Frequency & Intensity of Humor
- Several Jokes in Short 5-10 Min Clip
- Trained Actors
  - Facial Expressions
  - Vocal Intonations
- Features: Strong Indicators of Humor





# EMNLP 2006

- Empirical Methods in NLP
- Humor Analysis in Television Sitcoms
- Datasets for AI / ML Experiments:
  - Television Programs
  - Movies
- Train ML + Language Models
- New Rich Source of Data
  - Dialogs + Language + Audio + Visuals





AI IN ENTERTAINMENT





# EARLY CHALLENGES

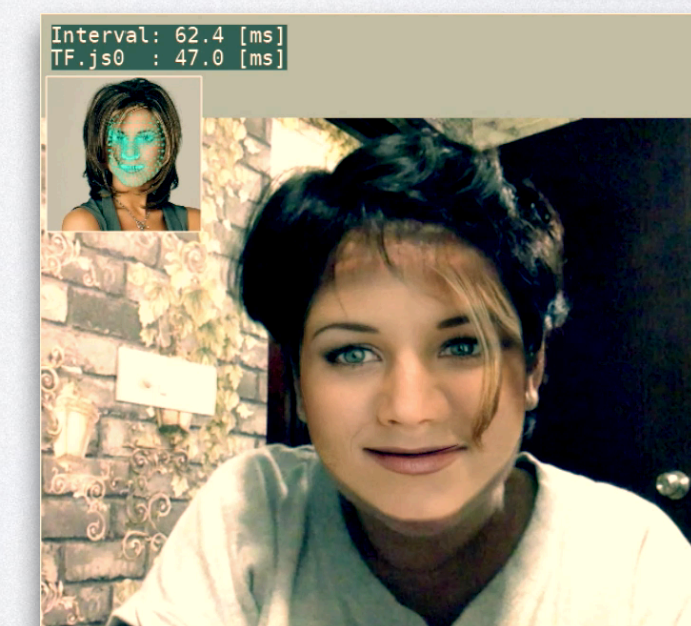
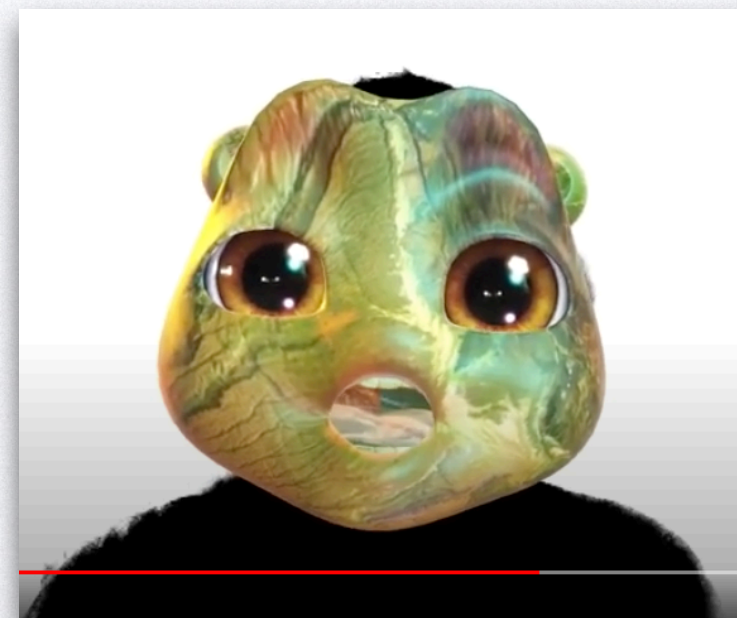
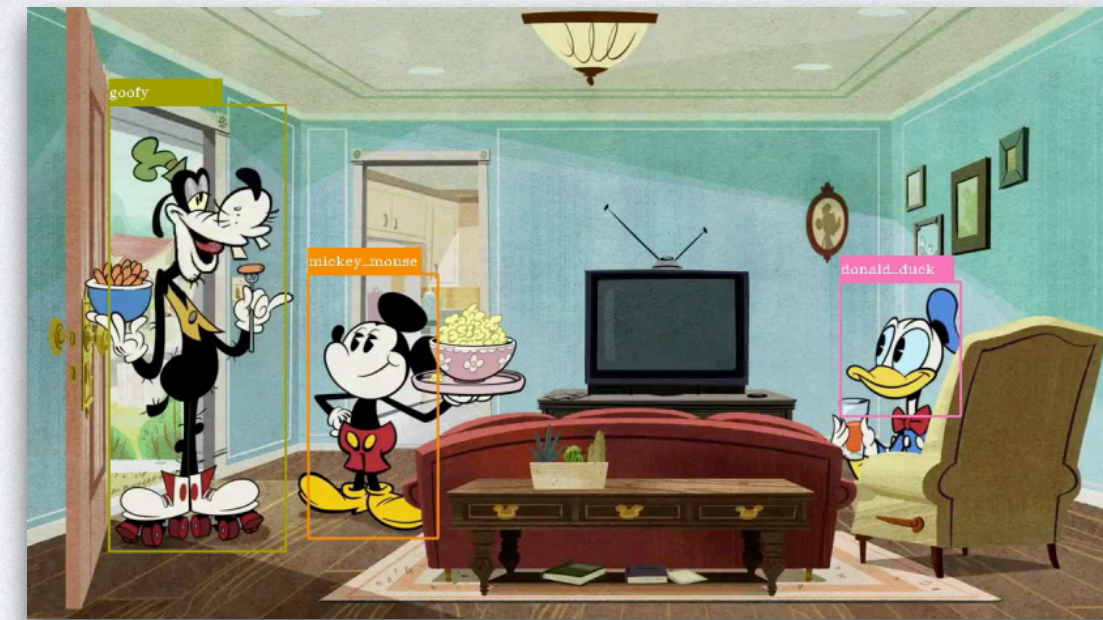
- Practical Challenges
  - Research in Computer Vision, Image Processing
  - Visual Features in F.R.I.E.N.D.S.
  - Gestures or Facial Expressions
- State of the Art
  - Datasets: ImageNet, Kinetics, PASCAL
  - Pre-Trained Models: Coco-SSD, MobileNet
  - Libraries: Keras, PyTorch, TensorFlow, OpenCV
  - Platforms: Cloud, Edge, Mobile, Web Browsers





# MULTI-MEDIA PROJECTS

- Facial Expressions: Comedy
- Motion Capture: Dance & Action
- Gesture Recognition: Computational Music
- Activity Recognition: Sports
- Object Detection: Animation & Classic Movies
- Video Tagging: Wild-Life Documentary
- Video Segmentation: Chroma-Key / VFX





# THANK YOU



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