STAC Update:
ML/DL/AI

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Why we are building strawman benchmarks for ML

- Many Council members have asked for ML benchmarks
- Getting a group to go from a blank sheet to usable benchmarks is hard
  - Many, many degrees of freedom
- We decided to develop PoCs to focus feedback
- Based on discussions with user firms and vendors

Goals

- Must have: technology benchmarks
- Very nice to have: technique benchmarks
- Technique comparisons require evaluation of comparable quality
- Sometimes technology differences require technique differences

Working Group Activity

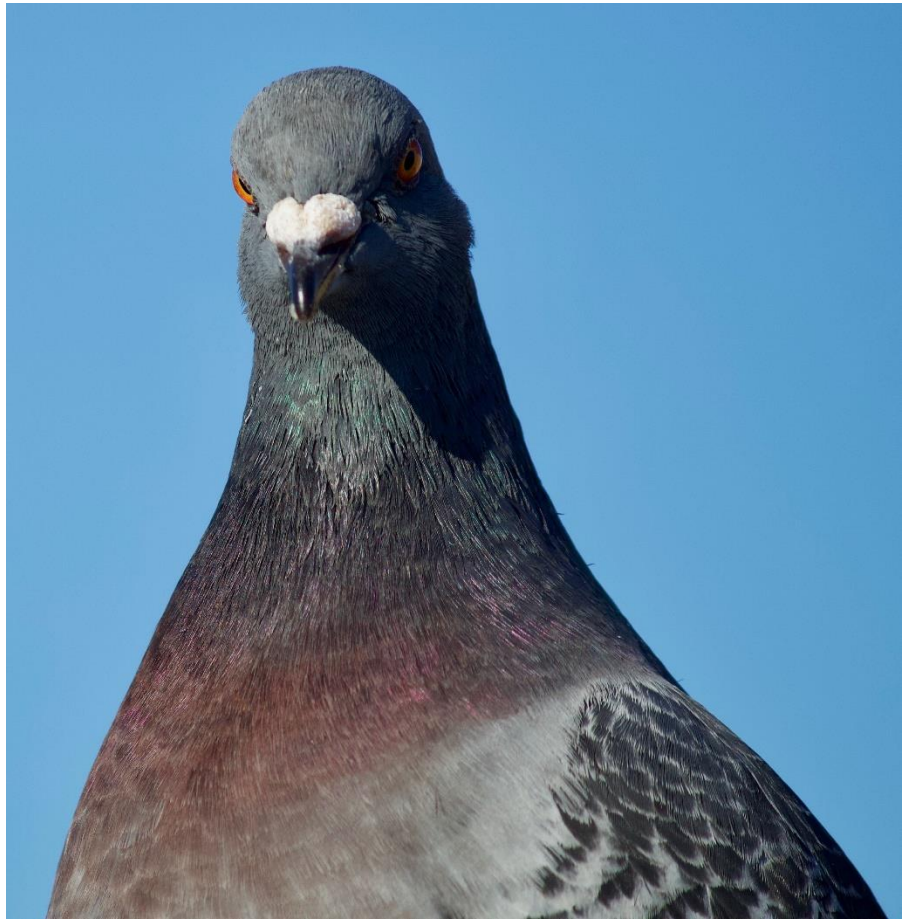
- Shuttle diplomacy in place of group meetings so far
- Expect telecons to review benchmark PoCs
- Great participation from customers and vendors
- Customers driving projects to see specific products in specific use cases based on their needs.
- Specific vendors diving in to do real work
- Particularly like to thank NAG for efforts so far

Benchmark PoCs

- Developing four PoCs based on input from WG members:
  - Deep time series (training, then inference)
  - Wide time series (training)
  - Entity matching (inference)
  - NLP (training) – presented this last time

The data problem

- Core challenge with real data
  - Don’t know underlying ”real” signal
  - Neural net models opaque
  - How to judge relative performance?
  - Compare to “superstitious” pigeons
- Simulated data advantages
  - Specify signal
  - Vary parameters e.g. signal:noise ratio
  - Compare model performance to reality



Deep Time Series: Crawl, walk, run approach

- Leveraging existing pieces
  - E.g. STAC-A2 path generation
- Generate simulated market data with known stochastic properties
- Start overlaying simple signals
- Test various ML methods success in detecting signals
- Next:
  - More interesting signals
  - More realistic market simulation
  - Larger volumes and/or denser time series data
  - Streaming mode

Other PoCs

- Wide Time Series and Inference being defined with interested individuals
  - Let us know if you want to help