Enhanced Visualization with Modern Color Scheme

NLP Course - Week 4

Enhanced Color Scheme Benefits

Modern Tech Palette

- Primary: Deep Blue #2E4057
- Secondary: Vibrant Teal #048A81
- Accent: Warm Orange #F18F01
- Neutral: Soft Gray #7D8491

Benefits:

- High contrast for readability
- Professional appearance
- Colorblind-friendly combinations
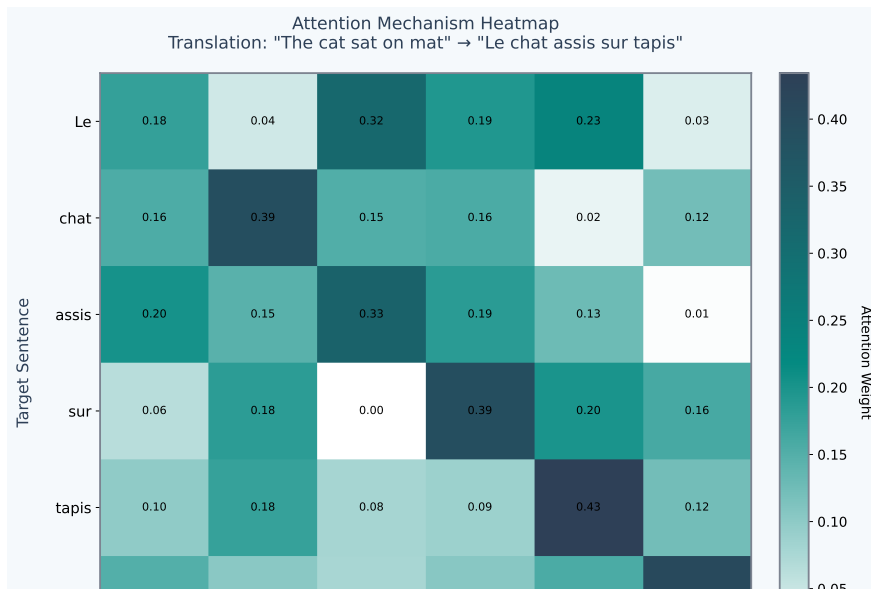- Reduces eye strain

Alternative Palettes

Educational Warm:
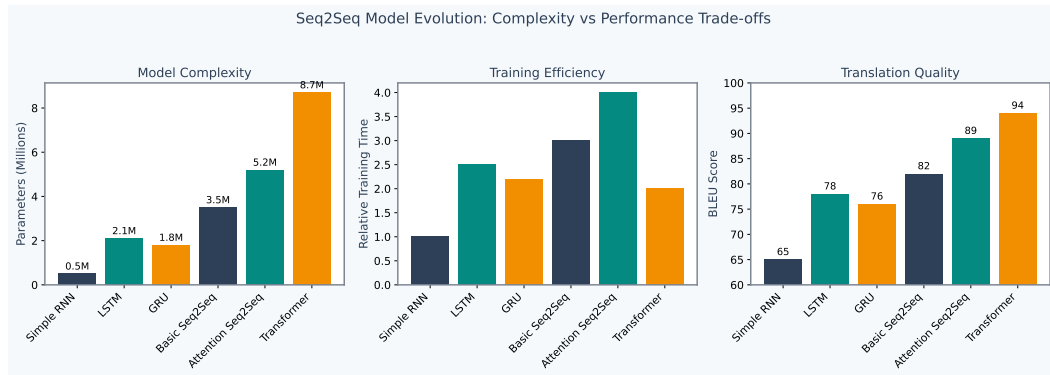
- Navy #1E3A8A
- Sky Blue #60A5FA
- Coral #FB7185

Nature Professional:

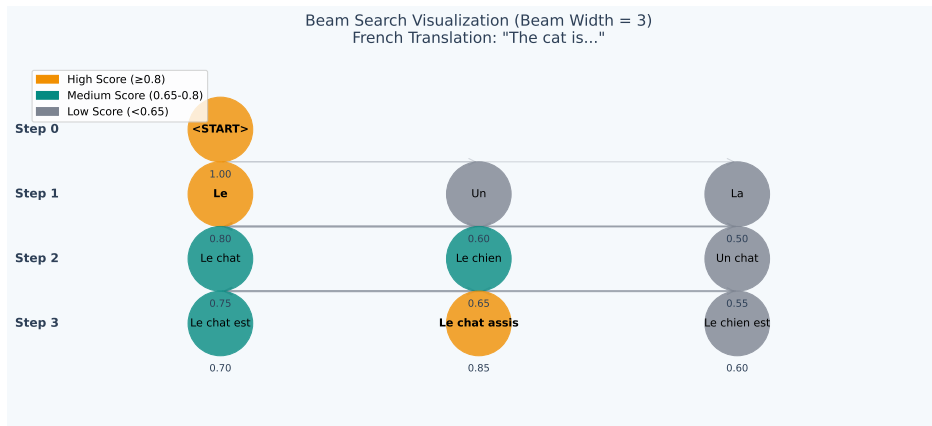- Forest Green #14532D
- Teal #0D9488
- Amber #F59E0B

Attention Mechanism Heatmap
Translation: "The cat sat on mat" → "Le chat assis sur tapis"

Seq2Seq Model Evolution: Complexity vs Performance Trade-offs

Comprehensive comparison of model architectures across multiple dimensions

Beam Search Visualization (Beam Width = 3)
French Translation: "The cat is..."
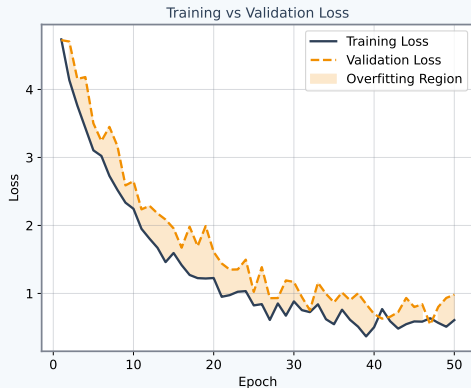
Interactive tree structure showing beam search paths and scores

Seq2Seq Training Dynamics Dashboard
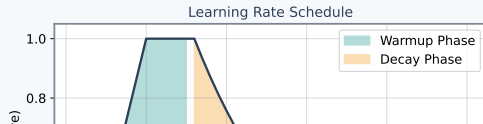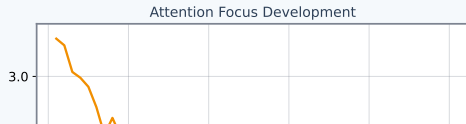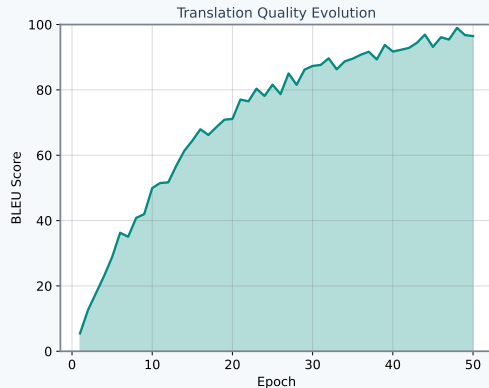
Context Window Analysis: Performance vs Resources
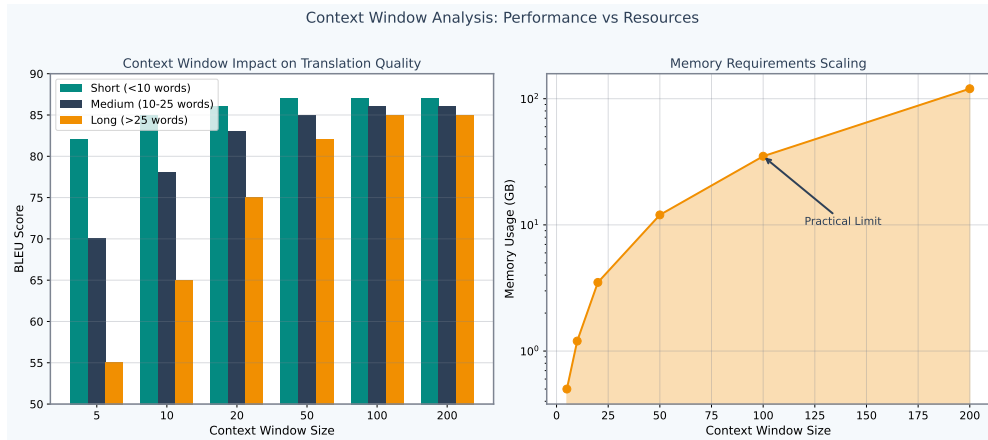
Performance vs resource trade-offs for different context sizes

New Chart: Architecture Evolution Timeline

Evolution of Neural Machine Translation Architectures
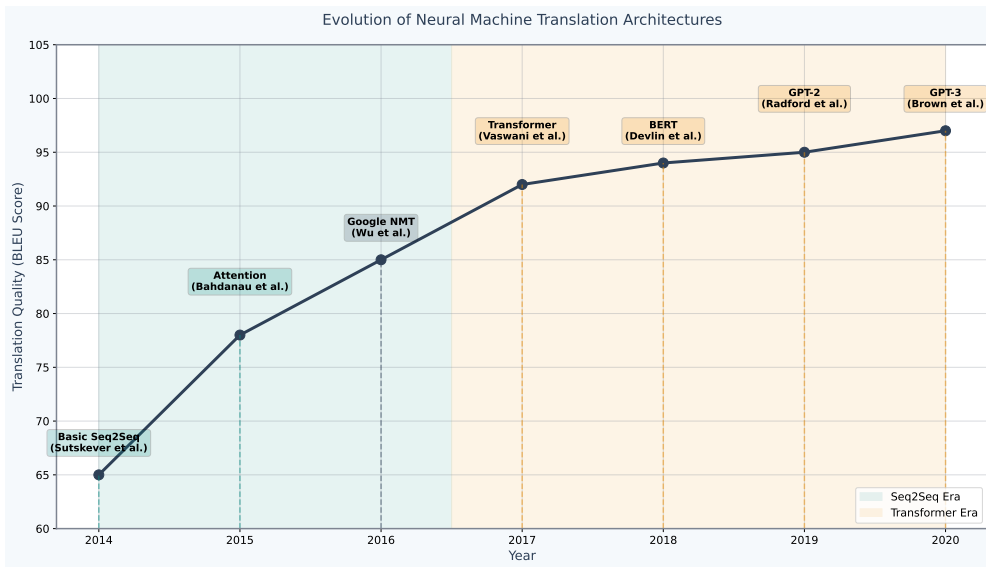
Historical progression of NMT architectures and their performance

Suggested Additions:

1. Vocabulary Distribution
   - Word frequency plots
   - OOV handling visualization
2. Error Analysis
   - Common translation errors
   - Error type distribution
3. Computational Efficiency
   - FLOPs comparison
   - Inference time analysis

Interactive Elements:

1. Gradient Flow
   - Backprop visualization
   - Gradient magnitude plots
2. Attention Patterns
   - Different attention types
   - Head specialization
3. Decoding Strategies
   - Sampling distributions
   - Temperature effects

Total: 6 new charts added + 6 more opportunities