





Όσοι ἄνθρωποι, τοσαῦται γνῶμαι

Harmonizing Guidelines for Handwritten Text Recognition of Ancient Greek DH2025, Lisbon, July 14-18th, 2025

HTR for Byzantine manuscripts

Recognising Ioannes Chrysostomus, Maximus Planudes, and Cyril of Alexandria

Elpida Perdiki

Democritus University of Thrace







What went wrong (and right)



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John Chrysostom

Maximus Planudes

Cyril of Alexandria (?)

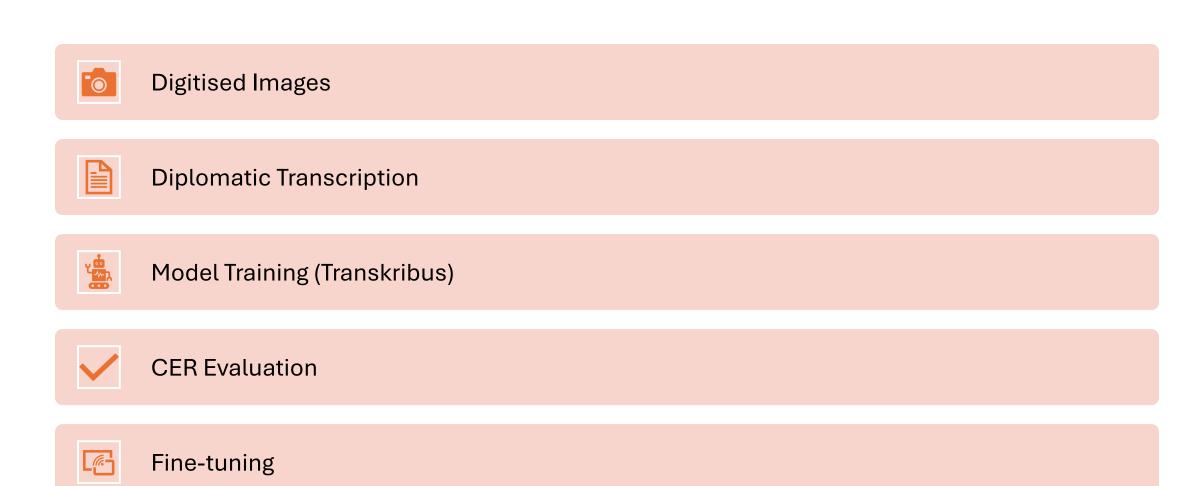
One method, three case studies

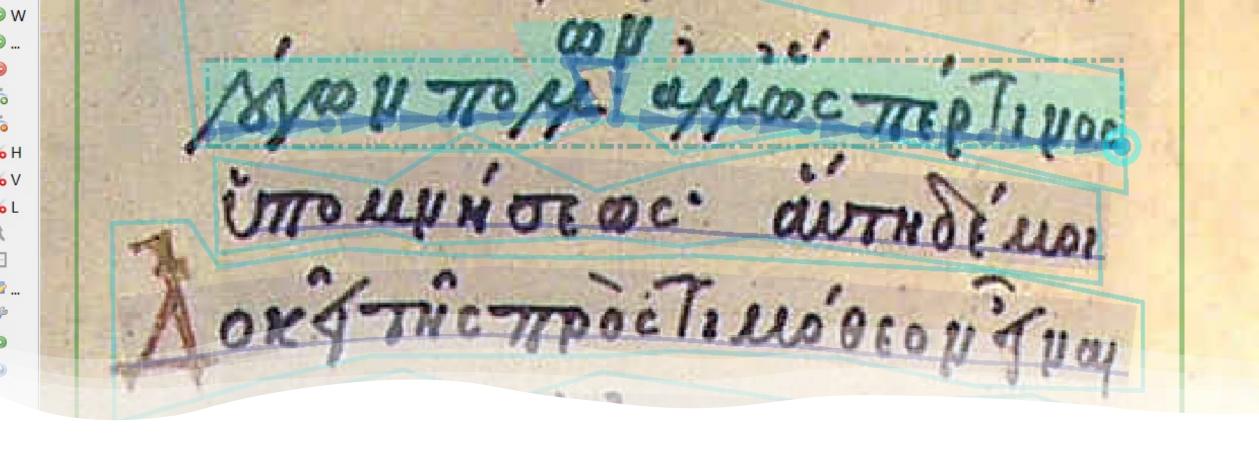
Same system configurations for all models

Quality over quantity

No overlap between training & validation data

General Workflow





Case Study I: Ioannes
Chrysostomus –
The Great Success

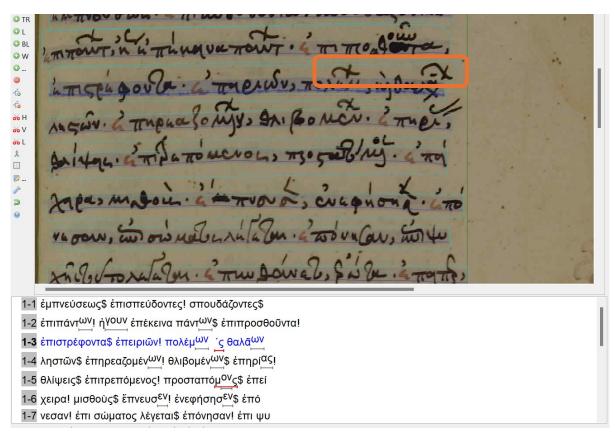
- •11 manuscripts (10th–14th c.), mixed image quality
- Total training input: 29,228 words
- •Diplomatic, consistent transcription (2 annotators)
- Layout fine-tuned (superscripts, hanging lines)
- •Final model (Chrysostomicus I): 3.9% CER

Maximus Planudes – The hidden potential of correcting your errors

- 2 autograph manuscripts, 13th century
- 4 transcribers, 8,000 words, diplomatic transcription
- Initial model (one manuscript): 16% CER
- After corrections: 8.5% CER
- Combined model (both manuscripts):
 8.9% CER (transfer learning)
- Main takeaway: transcription consistency > system tweaks

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Cyril of Alexandria – The almost disaster

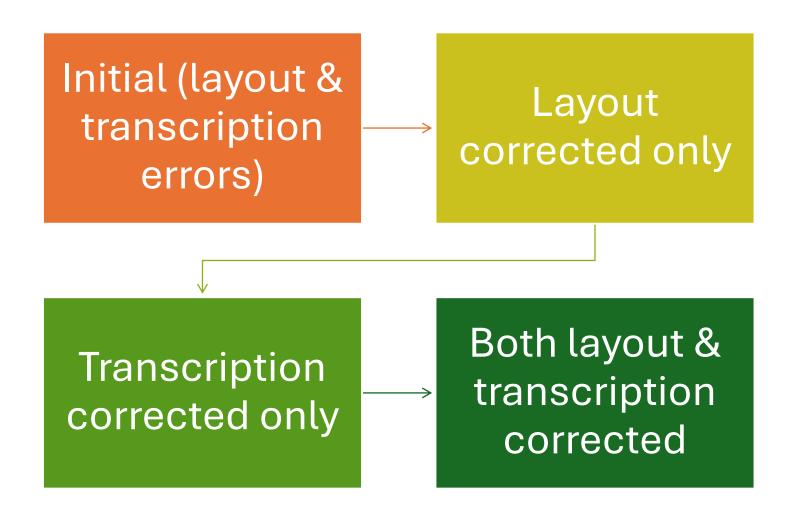


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Superscripted abbreviations out of basline

Missing line from layout recognition

Targeting HTR errors: 4 different models



Corrections applied only to:

Xeropotamou 093

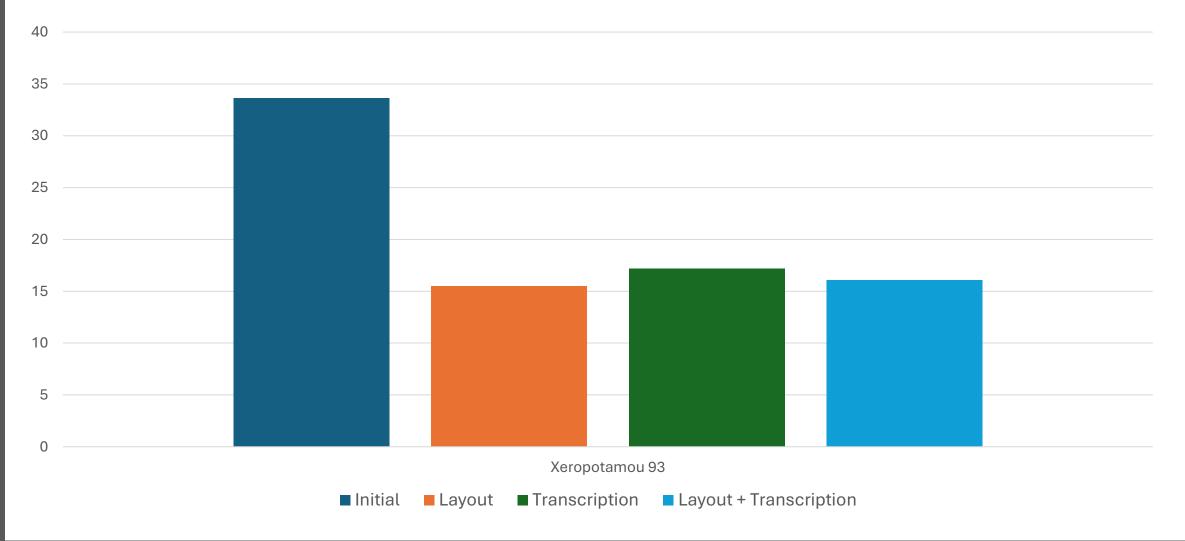
Training set: 8,000 words

(10% validation)

System settings fixed:

max epochs=250, learning rate=0.0003, early stopping=20

CER after corrections



What it means

Minor corrections have large impact on performance

Layout correction yielded best CER drop

Transcription quality is equally critical

Correcting both offers most robust and stable model

What we get from all of these

- HTR systems depend heavily on quality training data.
- Even clean digitisation **fails** if layout or transcription are inconsistent.
- Quality & consistency in annotation > quantity of data.
- Clear guidelines + supervision = better performance.
- The human factor is as crucial as technology.

What needs to be done



Systematic layout spotchecks before training



Peer-reviewed transcription tests & agreed conventions



Consistent
abbreviation
expansion
(preferably in
metadata)



Annotator training on guidelines & rationale



Ongoing communication & supervision

All we have to decide is what to do with the time that is given us.

J.R.R. Tolkien, *The Fellowship of the Ring*