

# Helping Engineering Students Writing Better English (Blitz)

Deep Parsers in Intelligent Tutoring and Error Detection Systems

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# The System

- ❖ Online system (working title 'LITS')
- ❖ English Error Detection System (EDS)
  - Supports academic writing for high proficiency students at NTU
  - Mix of native and non-native students (mostly from SEA)
  - ❖ grammatical and stylistic error detection (no correction!)
  - ❖ provides feedback to help students correct the error
  - ❖ explore and decide on best solutions on their own
- ❖ Corpus-based and adapted to the curriculum
  - ❖ students' performance (Learner Corpus)
  - ❖ lecturers' preference

# Behind the Curtains

- ❖ *bon*-ERG + *mal*-ERG approach
  - ❖ parse sent with ERG, if there is no parse, then:
  - ❖ parse sent with *mal*-ERG
- ❖ extra checks done by general NLP (e.g. sentence length, word repetition or capitalization)
- ❖ minor MRS checks (e.g. questions and imperative), derivation tree (fragments)
- ❖ *mal*-rules and other checks flag specific feedback
- ❖ approx. 60 types of feedback
  - ❖ different levels of confidence/severity (color marked)

# Pilot Evaluation

- ❖ 1000 groups of students (paired assignment)
- ❖ one extra week after the original deadline
- ❖ free use of the tool (i.e. multiple uploads)
- ❖ comparison pre-system vs. post-system submissions
  - ❖ over 90% participation
  - ❖ greatly asymmetric usage  
(i.e. no. of submissions, number of errors detected)
- ❖ generally positive feedback

**DEMO**

# What Lies Ahead

- ❖ Round 2 @ NTU
  - ❖ integrate in the curriculum (reach more students)
  - ❖ expand error checks
  - ❖ optimize feedback messages
  - ❖ overall system optimization
- ❖ ongoing discussions with SWU (Chongqing, China) and Palacký Univ. (Olomouc, Czechia)
- ❖ rinse / repeat / publish results

# Thank you!

<https://github.com/lmorgadodacosta/LCC-AssignmentChecker>