

- Other platforms are web-based, would like to keep it web-based
- Technologies & assessment
  - Diagnostic assessments for teachers, parents, and students
- Currently 3 different platforms
  - Balance ai junior (gr 3-6, 7-8, Over 1500 users)
  - A+ (supports undergrad & grad students at uoft, language development for international students)
  - Current project (balance ai discovery)
- Balance ai discovery
  - Teachers need tools for grade 1-2, pre-k
  - Task design & development that engages with children
    - How children's minds work
  - Want us to be in charge w/ their mentorship, tackle the challenge creatively
  - More student-friendly
  - Teachers can add a class
    - Can assess individual students (questionnaire)
  - Students can choose their own "buddy" (animated animals)
- Features
  - Recording is stored in backend and is transcribed using ASR, score is given
  - Tests proficiency, fluency
- Most of work is in google firebase/cloud, have tasks running in different places
  - Architecture where runtime is faster
  - Firebase for data storage
  - Computation, infrastructure: google cloud
  - One traditional server for ease of development
- About
  - Platforms: Parents, students, teachers
  - Focus on student platform
  - Entry: 4y
  - Progress assessment: 5y, every 6 mo
  - Exit assessment: 6
- Task 1
  - Oral interaction between AI buddy and student
  - At least two terms:
    - Understand name
  - Basic Q&A, minimum 2 turns
    - Introduction

- Task 2
  - Listening
  - Story-reading - buddy reads book to child
- Task 3
  - Rapid naming
  - Phonological awareness
  - Provide a series of pictures, ask child to name the picture as quickly as they can
  - Measure how quickly & accurately the child recognizes & identifies the object
- Task 4
  - Spelling
  - Given a picture, fill in letter out of given letters
- Task 5
  - Phonological awareness
  - Ai buddy says word, child has to pick word that matches what buddy said (higher level)
  - Ai buddy says letter, child picks matching letter (lower level)
- Task 6
  - Rhyming
  - Determine whether two words (shown with pictures & recording) rhyme
- Task 7
  - Storytelling
  - Pick a picture book & read aloud
- Multiple questions for each task, has different levels (beginner, intermediate, advanced)
- Is this the same kind of translation (AI) as balance ai junior?
  - No - age factor is critical & task inputs are different
  - How we validate will remain the same
  - Algorithms will be different
  - Based on rubrics
  - Human-score sample (~ 300), train ML model based on that
  - Store the model as binary
  - Apply model based on new data and score it based on different combo of features, and generate a score
- Is there training involved or are they testing every 6 months? Are there lessons?
  - There are parent/teacher dashboard, will provide individual reports on child
  - Child will receive direct intervention every six months using balance ai, depending on observations

- 3-way triangulation
- Think about what kind of data task is generating & how they're processed
- Should we approach the project using common sense or research?
  - Common sense - research complicates things
  - Think about it from user's perspective
- How much is accessibility a factor?
  - Don't want to introduce bias
  - May affect rapid naming, etc. (biased towards certain groups)
- Correctness of assessment: synonyms in rapid naming?
  - Going to be modeled
  - Could be multiple correct answers
  - Main expected answer
  - Machine can scaffold, can give a programmed hint
    - Ask child to try again
- Language barriers?
  - Different backgrounds between children
  - Word-level
  - Increase difficulty level as they progress
  - Machine can determine child's level based on how child answers (adaptive nature)
  - Check if child meets certain criteria
- Are we coming up with the tests? Should we record our own voices?
  - Part of creative process
  - Up to us how we want to implement it
  - machine-generated voices are less appealing
    - Machine-generating human-like voice?
- Would we have access to balance ai junior to get an idea of the platform?
  - Mentors will be working with us
  - We don't have to have access to junior
  - If we think access would help, they are fine with it
    - One concern: not possible to run junior locally, we might not have access to databases
- Accounts?
  - Parents create account
  - Students will log in through parents' accounts
  - 3 platforms will be linked

- Logging into schools?
  - Teachers using it over years
  - Parents having multiple children
  - Start small
- Remember that they are very young kids and might need help logging in
- MVP requirements?
  - Focus on 7 tasks, decide how much we can handle
- Primary goal is to make the task work
- Can work with data storage if we want
  - Required to use firebase (open to new ideas)
  - Delegate most tasks in the backend to the frontend
  - Not too many backend tasks
- Collaborates with google
- Measure what we want to accomplish & develop a plan