

REFLECT-A-BOT

THERAPIST TRAINING CHATBOT TO ENCOURAGE REFLECTION

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SPONSORED BY: JOB CROWDER

BASED ON:

1. "PAIR:...Counselor Reflection Scoring..." Min et.al.¹
2. "Building a Motivational Interviewing Dataset" Pérez-Rosas et.al.²

AGENDA

1. Purpose
2. Theory of impact
3. Measure progress
4. Measure the measurer
5. Data
6. Architecture
7. Data science process
8. Preliminary results
9. Arcagent (monkeypatched iPython)

PURPOSE

Improve quality of counseling sessions

IMPROVE COUNSELOR TRAINING

- Professors are overworked
- Students do not get enough practice
- Practice is rote memorization?

THEORY OF IMPACT

Better training == better counselors

AUTOMATION

- Reduce instructor workload
- Allow students to practice more
- Motivate students to practice more
- Create more diverse practice sessions

METRIC

Scientific method

SUMMATIVE ASSESSMENTS

- Before/after case studies
- Data **Science**

REAL WORLD

Product design

FORMATIVE ASSESSMENTS

- Practice in a simulation: [Runestone.Academy](#)
- Spaced repetition: [Anki](#)
- Make it fun! **Gamification:** [LibreLingo](#)

REFLECT-A-BOT

Identify a positive class

- Good: **Reflection**
- Bad: **Complex** reflection (TMI)
- Bad: **Other** (everything else)

GRADE THE GRADER



by Marcin Wichary on flickr.com

MODEL EVALUATION

- Accuracy
- Recall (False Negative Rate)
- Precision (False Positive Rate)
- F1-Score
- AUC - "Area Under the Curve"

ACADEMIC DATA

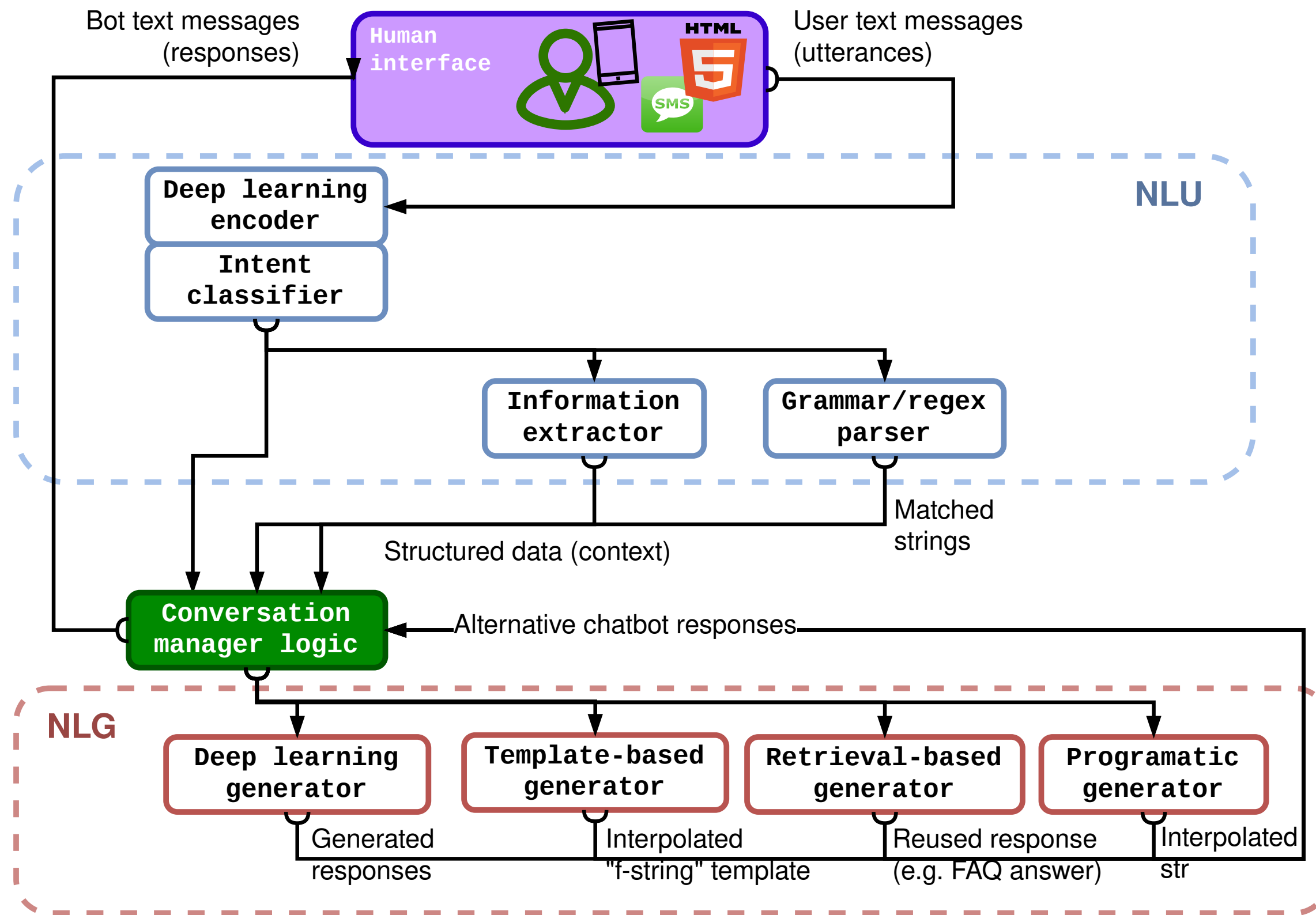
7141 utterance pairs: counselor prompt -> client response

Category	Count
Complex.0	993
Complex.1	318
Other	1077
Simple	4761

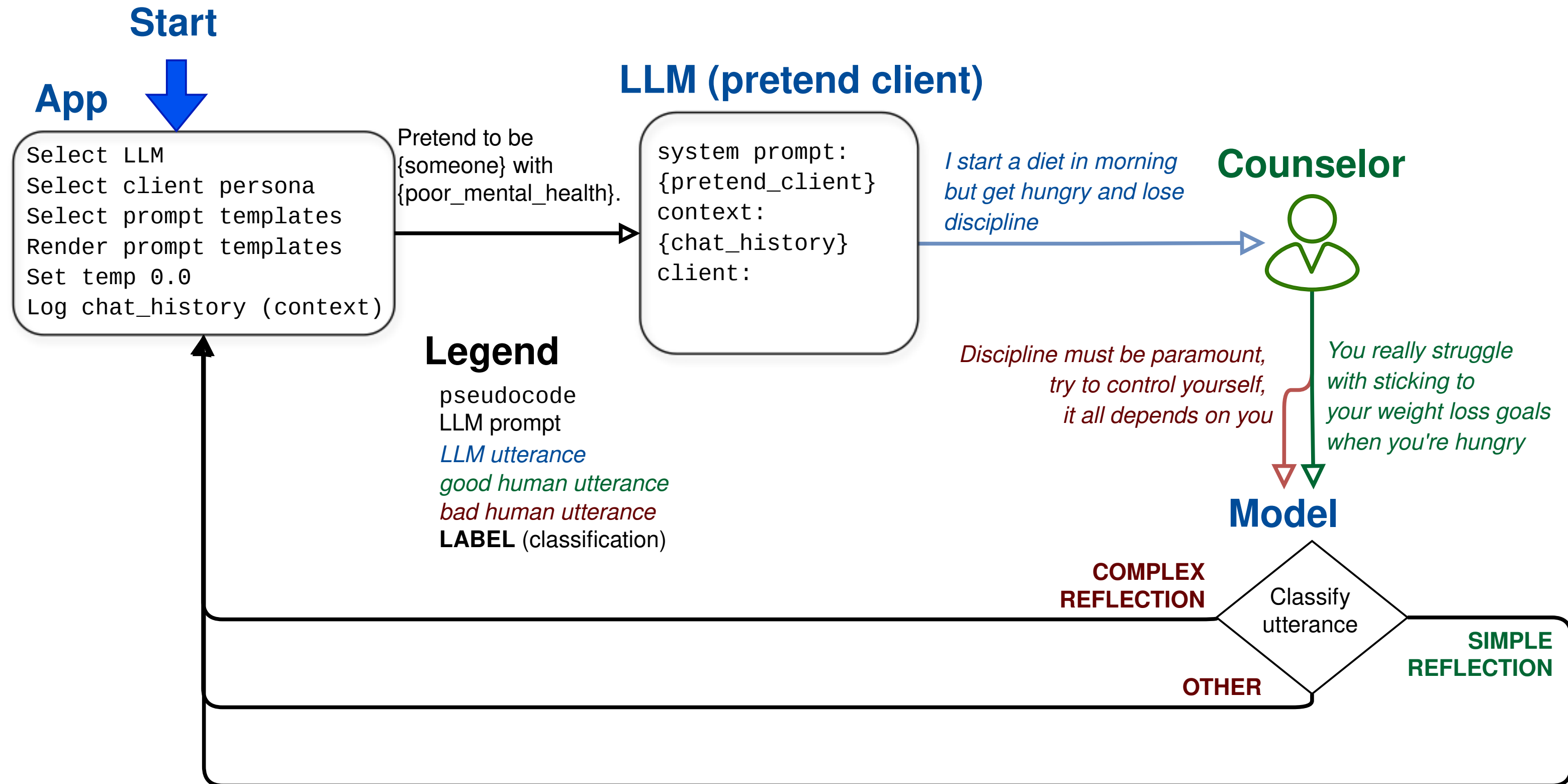
REAL WORLD DATA

id	role	text	category	sub_category	created_at
0	counselor	Hello, welcome back. How was your week?	question		###
1	client	Honestly, the week was terrible; I've been in and out of the emergency room again with this pain, and it just keeps getting worse, even though the doctors can't find anything wrong. I'm starting to feel really hopeless and like nothing will ever get better. I feel like I'm just stuck in a cycle of pain and anxiety.	default		###
2	counselor	That sounds extremely overwhelming.			###
3	client	It's so frustrating to feel this way and not have any answers or relief from the pain, especially when it's impacting your life so much. I can understand why you'd feel hopeless. I am here to help you process these feelings and explore ways to cope.	default		###
4	counselor	How long have you been feeling this way?	question		###
5	client	It feels like I've been dealing with this for years now, but it's really ramped up in the last year, with these frequent ER visits and constant pain. Before that, I had some issues, but nothing like this that has just taken over my life.	default		###
6	counselor	I see you've been feeling this for a long time, but recently, it feels like it's gotten a lot worse. Is that correct?	reflection	simple	###
7	client	Yes, it's true. Every time it gets worse and the doctors just keep sending me home, I feel like there's no point anymore. It's just a waste of time and money.	narrowed perspective		###
8	counselor	Sounds like you've tried a lot and you're exhausted and you're wondering if there's even something that would work at this point.	reflection	feeling	###
9	client	It's always the same. I come here, they run the tests, and nothing changes. It's all just a waste of time and money.	narrowed perspective		

NLP ARCHITECTURE



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LINKS

1. "PAIR: ... Counselor Reflection Scoring in Motivational Interviewing", Min et. al.
 2. "Building a Motivational Interviewing Dataset.pdf", Pérez-Rosas et. al.
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