Ruilang Qin

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Application to the NBER Digital Economics and AI Tutorial, January 2027

Education

- **PhD in Economics, University of Oxford**, expected graduation in 2029. Supervisors: Alexei Parakhonyak and Ludvig Sinander. Generously funded by the Oxford Chellgren Graduate Scholarship.
- **MPhil in Economics, University of Oxford**, 2024 – 2026. Grade: Distinction; awarded the George Webb Medley Prize for the best thesis.

  The two-year MPhil is the taught stage of Oxford's doctoral programme, during which I completed PhD-level coursework in macroeconomics, microeconomics, econometrics, mechanism design, market design, and empirical research methods (Julia, R, Python).
- **BSc in Economics, University of Warwick**, 2021 – 2024. First Class Honours; awarded the Examiners' Prize for the best dissertation.

Research Summary

I am a (US-equivalent) third-year PhD student working on mechanism design and dynamic games. My research asks how a designer should exploit costly actions to elicit preferences when users are heterogeneous, with primary applications to markets for digital technologies with frequent versioning.

In my first project (dynamic screening), waiting to buy reveals how much a consumer values product quality, and a multiproduct seller uses release timing as a screening instrument. In the second (feedback aggregation), choosing to respond reveals how much a user cares, and an AI developer deciding which model updates to ship can exploit this strategic abstention. Both projects are built to generate predictions that can be taken to data on product releases and model updates.

Ongoing Projects

1. Screening Expansionary Markets (A previous version was submitted as my MPhil thesis, which was awarded the George Webb Medley Prize for the best thesis at Oxford). Draft available on request.

Technology firms sequence their product lines in strikingly different ways. Nvidia releases its most expensive GPUs first and fills in the lower tiers later; Apple launches every iPhone model on the same day. I study a monopolist without commitment who sells quality-differentiated durable goods in an expansionary market, where forward-looking adopters of new technology keep arriving.

When demand is replenished in this way, release timing becomes a screening instrument. A seller who is sufficiently patient relative to her buyers runs sales cycles with sequentially expanding menus: high qualities first, lower ones added later. Delaying low types relaxes the high types' incentive constraints, so she extracts more rent. An impatient seller instead offers the full menu in every period.

Optimal menus always bunch types in the steady state, which explains coarse product lines without relying on failures of regularity in the distribution of consumer preferences.

2. Optimal Feedback Aggregation for Frequent Model Updates (early stage).

AI labs decide which model updates to roll out partly on the basis of user feedback that is voluntary and costly to give. Those who respond are therefore self-selected on how much they care, and the lab's decision rule itself shapes who responds – much as a firm's inference shapes which users opt out of data sharing in Miklós-Thal et al. (2023).

I study how a lab should design its feedback mechanism – what users are asked, and how their responses are aggregated – when update decisions are frequent, so that participation costs bind. Coarser formats, such as a thumbs-up, are cheaper to answer and so draw wider participation, but each response tells the lab less. The problem extends the design of voting rules with costly participation (Grüner and Tröger 2019, *Econometrica*) to repeated decisions and an endogenous choice of response format. I conjecture that a simple mechanism – a coarse format paired with a threshold rule – is uniquely optimal.

The model also applies to AI agents that give feedback on their users' behalf. Delegation drives participation costs towards zero and may erase the intensity information they carry; I aim to characterise when this worsens the lab's decisions.