

Yoshiya Yokomoto

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<https://github.com/YYoshiya>

EMPLOYMENT HISTORY

08/2024-present

Research Assistant to Professor Tatsuro Senga

- Writing code for numerical solution.
- Teaching and demonstrating deep learning-based solution techniques.

EDUCATION

04/2024 - present

Keio University MA in Economics

04/2020 - 03/2024

Rikkyo University BA in Economics

Thesis: “Heterogeneity of Expectation in Heterogeneous Agent model and Reinforcement learning” (2024)

LANGUAGE

Japanese: Native

English: Professional working proficiency

RESEARCH PAPERS

“Deep learning solution for Heterogeneous Firm models”

This paper introduces a novel solution method for heterogeneous firm models with aggregate uncertainty that significantly reduces computational time while maintaining solution accuracy. The core innovation involves approximating the policy function with a neural network that includes the equilibrium price as a state variable. This strategy directly tackles the fundamental computational bottleneck of repeated market-clearing equilibrium price calculations during simulation, leveraging the neural network’s ability to handle the resulting high-dimensional state space and overcome the curse of dimensionality. Applied to seminal models in the literature, including Khan and Thomas (2008) and Bloom et al. (2018), this approach achieves speed improvements of up to 50x. By maintaining the skeleton of established solution techniques while replacing key components with neural network approximations, my approach remains transparent and accessible to researchers already familiar with standard heterogeneous agent modeling techniques, opening new possibilities for analyzing complex firm dynamics with realistic computational resources.

COMPUTER SKILLS

Python (advanced), Julia (advanced), Matlab (intermediate), R (intermediate), Stata(intermediate), Fortran (intermediate), C++ (foundational), Git (advanced), Docker (foundational), Deep learning (advanced)