Humphrey Yang

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Education

Australian National University — Canberra, ACT

Ph.D. in Economics — February 2024–Present

Committee: John Stachurski and Thomas J. Sargent

Bachelor of Applied Data Analytics (GPA: 7/7) — July 2019–July 2023

Bachelor of Politics, Philosophy, and Economics (GPA: 6.75/7) — July 2018–July 2021

Awards:

- HDR Fee Remission Merit Scholarship — 2024 – Present
- Postgraduate Research Scholarship — 2024 – Present
- Smarterknowledge Prize for Data Wrangling — 2023
- Chancellor's Letter of Commendation — 2020-22 Academic Year

Working Papers and Publications

Working Papers

1. **Aggregate Shocks and Cross-Section Dynamics: Quantifying Redistribution and Insurance in US Household Data**
   with Thomas J. Sargent and Yatheesan J. Selvakumar
2. **Semiconjugate Equilibria**
   with Nisha Peng, John Stachurski, and Jingni Yang
3. **Dynamic Programming: From Local Optimality to Global Optimality**
   with John Stachurski and Jingni Yang
4. **Machine Learning Calvo's Optimal Plan**
   with Thomas J. Sargent
   (Accepted at *Journal of Economic Dynamics and Control*)

Published

1. **Ramsey Plan for Calvo's Model**
   with Thomas J. Sargent, *Quarterly Review, Federal Reserve Bank of Minneapolis, 2025*
2. **Machine Learning a Ramsey Plan**
   with Thomas J. Sargent, *Quarterly Review, Federal Reserve Bank of Minneapolis, 2025*
3. **QuantEcon.py: A Community-based Python Library for Quantitative Economics**
   with Quentin Batista et al. *Journal of Open Source Software, 2024*
4. **Copyright Protection and Accountability of Generative AI: Attack, Watermarking and Attribution**
   with Haonan Zhong et al. *In Companion Proceedings of the ACM Web Conference, 2023*

Employment History

Research Assistant | Professor Thomas J. Sargent November 2024–Present

- Assisted in preparing course materials for master's- and PhD-level courses on computational methods in economics.
- Conducted research and simulations on dynamic commitment problems, time-varying parameter models, optimal growth theory, and Bayesian econometrics.

Research Assistant | QuantEcon July 2022–Present

- Contributed to lectures and workshops on scientific computing and modeling in quantitative economics using Python and high-performance computing libraries (e.g., **Google JAX**).
- Contributed to the QuantEcon.py library for quantitative economics and finance.

Research Assistant | RSFAS, ANU July 2023–June 2024

- Assisted Professor Yanrong Yang in research on **Benign Overfitting for Complicated Data Inference** under the ARC Discovery Project (DP230102250).
- Conducted large-scale simulations to investigate model behavior on high-dimensional data using high-performance computing packages.

Research Affiliate | Data61, CSIRO March 2023–July 2023

- Designed adversarial attacks to evaluate robustness of Large Language Models (LLMs) using **reinforcement learning and adversarial training** for responsible AI development.
- Developed reinforcement learning frameworks for LLM testing, defining appropriate action spaces, state representations, and reward metrics.

Summer Research Internship | Data61, CSIRO November 2022–February 2023

- Researched the landscape of **copyright protection in generative AI** and presented a research poster at the **ACM Web Conference**.
- Implemented and measured **GAN and diffusion models** using CSIRO Bracewell HPC and improved their methodologies based on results.

Teaching

RSFAS, Australian National University

Principles of Mathematical Statistics for Actuarial Studies (STAT6013) – Tutor Semester 1, 2023

Statistical Learning (STAT6040) – Tutor Semester 1, 2023

Graphical Data Analysis (STAT3011/STAT4026/STAT7026) - Marking Assistant Semester 2, 2022

Quantitative Research Methods (STAT1008) – Tutor Semester 2, 2022

Conference and Seminar Presentations

2025 CCSS Workshop (University of Technology Sydney), Conference on Machine Learning for Economics and Finance (University of Turin), University of Sydney, Australasian Economic Theory Workshop (University of New South Wales).

Additional Information

Technical Skills:

- Proficient in Python, SQL, R, PyTorch, Bash, LaTeX, and Markdown.
- Familiar with C, Java, Julia, high-performance computing, and Sphinx.

Languages:

- English (Proficient), Mandarin Chinese (Native).