

**About Me** PhD candidate in economics with a strong background in applied economics, causal inference and machine learning. On the 2022-2023 job market and looking for Economist/Data Scientist positions.

**Contact Info** ✉ [eeey@u.northwestern.edu](mailto:eeey@u.northwestern.edu) ☎ 312-479-7891 🔗 [eeeyz.me](https://eeeyz.me) 🌐 [linkedin.com/in/eeeyz/](https://www.linkedin.com/in/eeeyz/)

**Education** Ph.D., Economics, Northwestern University, *Evanston*, 2023 (Anticipated)  
Applied Econometrics, Applied Macroeconomics, Industrial Organizations, Deep Learning  
MA, Economics and Finance, CEMFI, *Madrid*, 2017  
Microeconometrics, Statistics, Quantitative Macroeconomics, Empirical Industrial Organizations  
BA & BS, Economics & Mathematics (double major), Boğaziçi University, *Istanbul*, 2015 *with honor*

**Papers** **Intergenerational Earnings Mobility Trends and Childhood Skill Formation**  
 ► Implications of rising inequality for intergenerational mobility through childhood skill formation.  
 ► Nonparametric estimation of childhood skill formation function.  
     • Simulated EM algorithm for a factor model with Markov chain Monte Carlo.  
     • Empirical model includes nonlinear quantile regression, logit, ordered probit, MLE.  
     • Python, Numpy, Scipy, Mpi4py (parallelization), Emcee (MCMC), HPC Cluster  
 ► Data: PSID and Child Development Supplement.  
     • Extensive data preprocessing with R and Tidyverse (merging, cleaning, creating new variables etc.).  
 ► Nonparametric skill formation function has features can explain trends.  
     • e.g. heterogeneity in returns, negative skewness for more educated parents.  
     • Cannot be captured by CES with normal noise which is currently used in literature.

**Invention and Technological Leadership during the Industrial Revolution,**

*with* Carl Hallmann and Lukas Rosenberger.

- The first empirical cross-country (France and Britain) evidence on innovation during the Industrial Revolution.
  - Positive association on sectoral level and but France is advanced in some sectors.
  - Instrumental variable results show only local spillovers of technology transfers from Britain.
- OCR and fuzzymatching with Python to digitize data from scanned bulletins of patent office.
- Machine Learning to predict nationality from inventors' names.
- SPARQL for dataset of French National Library.

**Taxes and Transfers with Nonlinear Wage Dynamics,** *with* Nezhir Guner.

- Estimate a nonlinear and nonnormal wage process to capture rich productivity dynamics.
- Implications for insurance mechanisms (progressive taxation and transfers) in a lifecycle model.
  - Numerical Optimization, Fortran, OpenMPI, HPC Cluster.
- Insurance mechanisms are less valuable for poor but more valuable for rich people.

**Engel's Treadmill,** *with* Clement Bohr and Martí Mestieri.

- An endogenous growth model with nonhomothetic preferences and directed technical change.
- Sectors rise and fall as the economy gets richer while we have balanced growth in aggregate level.
- Empirical evidence in favor of model predictions for prices, patents and turn over across sectors.

**Projects** **Are RNNs Useful for Macroeconomic Forecasting?** *with* Carl Hallmann and Federico Puglisi.

- Compare performance of RNN with Bayesian VAR in predicting macro variables e.g. GDP, inflation, Fed rate.
- RNNs performs similar to Bayesian VAR, but adding autocoder with more info improves the performance.

**Mobility of Inventors: Evidence from Historical Patents of France and UK** *with* Walker Hanlon.

- Evidence on engineers and more productive inventors are more likely to move.
- Empirical model with logit, multinomial logit and MLE and used R with tidyverse.

**Experience** PhD Dissertation Internship, Federal Reserve Bank of St. Louis, 2022 Summer.  
Research Assistant, Prof. Walker Hanlon, Northwestern University, 2021 Winter.  
Research Assistant, Prof. Marti Mestieri, Federal Reserve Bank of Chicago, 2020 Winter.  
Research Assistant, Prof. Monica Martinez-Bravo, CEMFI, 2016 Summer.

**Skills** Python (*numpy*, *scipy*, *pandas*, *scikit-learn*), R (*tidyverse*), Fortran, Matlab, Linux, SPARQL.