JAESEOK HWANG

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PhD Quantitative Economist (May 2026) focused on model validation, stress testing, and decision-risk diagnostics in non-stationary environments.

PROFESSIONAL EXPERIENCE (Quantitative Research)

Data Intensive Farm Management (USDA Grant) Sep 2020 – Aug 2025

- **Model Validation Pipeline:** Built reproducible Python/R/SQL workflow for geospatial and time-series data (500k+ observations), including staged ETL, feature engineering, holdout testing, and audit-ready outputs.
- **Out-of-Group Stability Diagnostics:** Implemented leave-one-location-out validation, monotonicity-constrained vs unconstrained model challengers, and feature-rank stability checks to detect generalization risk.

Center for the Economics of Sustainability (UIUC) Jan 2021 – Aug 2024

- **Stress Testing (Monte Carlo):** Designed simulation experiments to quantify profit-at-risk under stochastic volatility and policy/input shocks.
- **Causal and Behavioral Risk Analysis:** Applied panel econometrics and counterfactual analysis to estimate decision response under uncertainty and identify heterogeneity in downside exposure.

QUANTITATIVE MODELING PROJECTS

Code Portfolio: github.com/jaeseokh

Model Transferability and Decision-Loss Diagnostics (Python, SQL, XGBoost/RF, SHAP)

- Designed a three-stage validation framework (prediction, decision gap, mechanism stability) with 20 out-of-group holdouts to test robustness under distribution shift.
- Quantified decision-risk gaps (mean absolute decision gap: 50.8 units; 50% of holdouts above 40-unit threshold) and linked errors to economic loss proxies.
- Built assumption-audit outputs to classify transferability, mechanism stability, and covariate adequacy; converted findings into go/no-go deployment recommendations.

Hierarchical and Nonlinear Decision Modeling under Uncertainty

- Developed Bayesian hierarchical and nonlinear models to estimate heterogeneous response functions across operating segments.
- Used partial pooling/shrinkage to stabilize inference for sparse segments and improve reliability of interval estimates for decision support.
- Produced reproducible reporting artifacts (tables/figures/memos) for technical and non-technical stakeholders.

EDUCATION

University of Illinois at Urbana–Champaign *May 2026 (expected)*
Ph.D. Agricultural and Applied Economics
Focus: Econometrics, Optimization under Uncertainty, Price Analysis

University of Illinois Urbana–Champaign *May 2020*
M.A. Agricultural and Applied Economics

Sogang University *Aug. 2013, South Korea*
B.S. Economics

TECHNICAL SKILLS

Programming & Data: Python (Pandas, NumPy, scikit-learn, XGBoost), R, SQL, Git/GitHub.

Modeling & Validation: Out-of-time/group validation, model stability diagnostics, Bayesian hierarchical modeling, Monte Carlo simulation, time-series analysis.

Risk Analytics Focus: Decision-loss decomposition, stress testing, uncertainty quantification, scenario analysis.