

# Gus Gerlach

St. Louis, MO — gerlachgus11@gmail.com — 612-669-6024

## EDUCATION

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### Washington University in St. Louis

B.A., Majors in Applied Mathematics and Economics

*Summa Cum Laude*

*December 2024*

*GPA: 3.98*

## RESEARCH EXPERIENCE

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### Federal Reserve Bank of St. Louis

*Research Associate*

*March 2025-Present*

- Coauthor with Dr. Serdar Birinci on a structural model of unemployment and disability insurance substitution. Programmed and solved entire model in Python; optimized using MPI parallelization, Numba accelerations, and other memory saving techniques. Calibrated model using BigTex Computing Environment from the Federal Reserve Bank of Dallas.
- Research support for Dr. Oksana Leukhina on human capital and college access. Constructed a longitudinal database of college enrollment, expenditures, and outcomes from ASCII files. Processed and analyzed over 1TB of LinkedIn data using memory-efficient storage and parallel computation.
- Produced policy-relevant analysis on productivity and labor market flows for FOMC briefings; prepared figures and memos used by senior economists and the Bank President.

### Washington University Institute for Informatics

*Research Assistant*

*May 2023-August 2024*

- Conducted research in computational data science under the supervision of Dr. Zachary Abrams.
- Devised and created a novel statistical method which applies Bayesian inference and the left-skewed Gumbel distribution to assign significance to topological features; **first author** on associated paper.
- Developed a range of topological data analysis tools, including a method for selecting the optimal scale parameter; all methods are now publicly available on CRAN.

## WORKING PAPERS

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**Gus Gerlach**, Harry Reed, Kevin Coombes, Zach Abrams. “EBGLIDE: Empirical Bayesian Gumbel-based Loop Inference Detection.” Under review at *Scientific Reports*, January 2026.

Serdar Birinci, **Gus Gerlach**, Yusuf Mercan, and Kurt See. “UI-DI Substitution.” February 2026.

## RA SUPPORT

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Serdar Birinci and Kurt See. “The Implications of Labor Market Heterogeneity on Unemployment Insurance Design.”

Serdar Birinci. “Spousal Labor Supply Response to Job Displacement and Implications for Optimal Transfers.”

Serdar Birinci, Fernando Leibovici, and Kurt See. “The Allocation of Immigrant Talent: Macroeconomic Implications for the U.S. and Across Countries.”

Oksana Leukhina, Lutz Hendricks, and Tatyana Koreshkova. “Causes and Consequences of Student-College Mismatch.”

Oksana Leukhina and Guillaume Vandenbroucke. “Lifetime Work Hours and the Evolution of the Gender Wage Gap.”

Oksana Leukhina, Lutz Hendricks, and Tatyana Koreshkova. “On Expanding Public Funding of Selective Colleges.”

## ST. LOUIS FED PUBLICATIONS

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Oksana Leukhina and **Gus Gerlach**. “On College Experience and Unemployment.” *FRED Blog*, August 2025.

Miguel Faria-e-Castro, Serdar Birinci, Kurt See, and **Gus Gerlach**. “U.S. Retirement Normalization following the COVID-19 Pandemic.” *On the Economy Blog*, July 2025.

Serdar Birinci, Kurt See, and **Gus Gerlach**. “Unemployment Insurance Eligibility and Benefits: An Analysis of Rules across U.S. States and Time.” *On the Economy Blog*, June 2025.

## OTHER EXPERIENCE

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### **Barnes-Jewish Hospital**

*February 2026-Present*

*Volunteer, General Medicine ICU*

- Assist with patient communication, family coordination, and non-medical needs. Maintain patient-room readiness and respond to time-sensitive staff requests.

### **Mid America Lacrosse Officials Association**

*2019-2023, 2026*

*High School and Youth Lacrosse Referee*

- Officiated 100+ lacrosse games, ranging from U8 to Varsity. Ensured player safety and communicated decisions with (often difficult) coaches and parents. Concussion and first aid certifications.

### **Washington University Department of Mathematics**

*September 2022-May 2023*

*Grader*

- Graded weekly homework and exams for an upper-level statistics and a differential equations class. Hosted weekly office hours for students, helping with coding in R and conducting lecture review.

## OTHER

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**Skills:** Stata, R, Python, Matlab,  $\text{\LaTeX}$ , Excel.

**Languages:** English (native), Spanish (intermediate)

**Interests:** Running, Cycling, Ultimate Frisbee, Esports, Table Tennis, Religion.