

# Frédéric Mirindi

PhD Student, Economics & Econometrics

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## PROFESSIONAL SUMMARY

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Economist, educator, and researcher with a passion for advancing knowledge and inspiring others. Currently pursuing a Ph.D. in Economics and Econometrics at the University of Manitoba, with a commitment to pushing the boundaries of understanding in the field. Serving as a sessional instructor at Booth University College, teaching Introduction to Microeconomics and Applied Finite Mathematics, and designing engaging, student-centered, data-driven learning experiences that connect economic theory to real-world applications. Research focuses on the integration of artificial intelligence and machine learning in macroeconomic and financial modeling, exploring innovative solutions to complex economic challenges. Proven track record of building and leveraging professional networks across Canada and internationally to foster collaboration and knowledge exchange. Recipient of prestigious Canadian and international competitive awards, highlighting excellence in academic and research pursuits. Bilingual in English and French, thriving in multicultural academic settings and fostering inclusive, interdisciplinary environments that bridge teaching, research, and policy relevance to make meaningful contributions to society.

## EDUCATION

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**University of Manitoba**, Winnipeg, Canada *2024 – Present*  
Ph.D. in Economics

**University of Manitoba**, Winnipeg, Canada *2023 – 2024*  
Pre-Doctoral Program in Economics

**University of Antwerp**, Antwerp, Belgium *2018 – 2019*  
M.Sc. in Development Evaluation

**African Economic Research Consortium (AERC)**, Nairobi, Kenya *2017*  
Master's Bridge Programme in Economics

**Catholic University of Bukavu**, Democratic Republic of Congo  
M.Sc. in Economics *2014 – 2016*  
B.Sc. in Economics *2011 – 2014*

## TEACHING EXPERIENCE

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**Booth University College**, Winnipeg, Canada *September 2024 – Present*  
Sessional Instructor

- 👤 **Courses Lecturer and Curriculum Development:**

- *ECO110 – Introduction to Microeconomics*

- \* Oct 30, 2024 – Dec 24, 2024

- \* Jan 6, 2025 – Feb 28, 2025

\* Mar 3, 2025 – May 1, 2025

👥 Average class size: 15–25 students

– *MAT100 – Applied Finite Mathematics*

\* Jan 6, 2025 – Feb 28, 2025

\* Mar 3, 2025 – May 1, 2025

👥 Average class size: 15–25 students

-  [Faculty Profile](#)

**Catholic University of Bukavu**, Democratic Republic of Congo    *September 2016 – May 2017*  
**Teaching Assistant**

-  **Courses Teaching Assistant, Curriculum Development:**

– *Macroeconomics (Fall 2016 Term)*

Sept 1, 2016 – Dec 24, 2016

👥 Number of students: 132 (Undergraduate level)


– *Quantitative Methods (Winter 2017 Term)*

Jan 10, 2017 – May 2, 2017

👥 Number of students: 210 (Undergraduate level)

## RESEARCH EXPERIENCE

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 **Center for Economic Research and Graduate Education – Economics Institute (CERGE-EI)**, Prague, Czech Republic    *January–August 2021*

**Research Assistant**

*Supervisor: Prof. Christian Ochsner*

- Conducted empirical research in economics within the CERGE-EI institutional framework, performing data collection, cleaning, and quantitative analysis using R and Stata.
- Executed comprehensive literature reviews and developed technical documentation on historical and political economy themes.
- Partnered on research investigating the intersection of economics, identity, and conflict, shaping theoretical frameworks and refining regression diagnostics.

 **Traidlinks**, Ireland

*January – June 2017*

**Trade Consultant – Eastern DRC Market Access Initiative**

*Supervisor: Bernard O’Connell*

- Spearheaded and delivered trade promotion initiatives in DR Congo, fostering a tripartite B2B collaboration between Burundi, Rwanda, and Congo, connecting enterprises and distributors across all three countries.
- Designed and implemented structured interviews and surveys targeting local entrepreneurs, evaluating market potential through econometric analysis and generating actionable policy recommendations.

- Contributed to three regional sales missions by optimizing trade routes and expanding distributor networks across Eastern Congo.
- Developed and presented analytical reports and dynamic visual dashboards, leveraging market trend data and sector indicators to guide strategic trade decisions.

 **University of Bayreuth**, Bayreuth, Germany

*March 10–13, 2016*

**Participant, Joint Research Project – Political Economy and Development Studies**

Bayreuth International Graduate School of African Studies (BIGSAS)




*Supervisor: Prof. Dr. Martin Doevevspeck*

- Directed qualitative research on ethnic entrepreneurship in the DR Congo in partnership with the Catholic University of Bukavu, collaborating within an interdisciplinary team of German and Congolese students.
- Conducted in-depth interviews with local entrepreneurs and residents, investigating informal economic structures, market accessibility, and the social dynamics influencing business activities.
- Performed data analysis, delivered an engaging final presentation, and authored a comprehensive project report assessing economic participation in post-conflict urban settings.





## SKILLS

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### Professional Skills

-  **Quantitative Research:** Proficient in econometric analysis, data modeling, and experimental design for applications in development, trade, and financial economics.
-  **Academic Instruction:** Skilled in curriculum development and delivering undergraduate courses in microeconomics and applied mathematics using student-centered, data-driven methods.
-  **Cross-Cultural Collaboration:** Experienced in working across multicultural and multilingual academic settings, promoting inclusive and interdisciplinary research and teaching.

### Technical Skills

-  **R:** Statistical modeling, econometrics, and data visualization
-  **Python:** Machine learning, data processing, and automation
-  **RATS:** Time series analysis and macroeconomic forecasting
-  **Stata:** Panel data analysis and econometric modeling

### Languages

-  **Polyglot:** Fluent in English, French, Swahili, Kinyarwanda, Kirundi and Lingala.

## WORK EXPERIENCE

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### Data Analyst

2022 – 2024

Canada Life, Winnipeg, Manitoba

- Applied advanced econometric techniques, including time series analysis, panel data methods, and multilevel modeling, to optimize actuarial forecasting, underwriting analytics, and claims assessment, achieving a 50% reduction in processing time.
- Developed predictive models leveraging ARIMA, GARCH, and supervised machine learning algorithms to refine premium pricing strategies, forecast mortality and morbidity rates, and enhance risk segmentation.
- Conducted scenario analysis and executed stress testing for product portfolios, encompassing life, disability, and health insurance, to strengthen capital planning, ensure regulatory compliance, and boost fraud detection efficiency by 25%.
- Designed and delivered internal dashboards and strategic reports to empower senior management in making data-driven decisions on customer retention, portfolio performance, and risk-adjusted product development.

## RELEVANT AWARDS & RECOGNITIONS

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### University of Manitoba Department of Economics Fellowship

2024–2025

*PhD Economics program – \$14,000 awarded for academic excellence and research potential.*

### Faculty of Arts Endowment Fund, University of Manitoba

November 2024

*\$650 awarded to support the presentation of “From Rubber to Cobalt” at the Graduate Seminars in Economic and Social History, University of Oxford.*

### CPA Programme Scholarship


2023–2025

*Full tuition (\$4000) coverage provided by Manitoba Careers for Internationally Educated Professionals.*

### Projet Jeunesse francophone et innovation sociale Grant

2023


*\$5,000 awarded by 15–30 en Action initiative for innovative social projects.*

 [Video Presentation](#)

### 48H Top Chrono Award

2023

*\$1,000 prize won in RDEE Canada entrepreneurship competition for business pitch.*

 [Project Feature and Competition Results](#)

### Jeunes Entrepreneurs 18–35 ans Grant

2022

*\$1,000 awarded by CDEM Manitoba youth entrepreneurship program for business development.*

### VLIR-UOS Scholarship

2018–2019

*Full funding provided by Belgian Development Cooperation for M.Sc. studies at University of Antwerp - \$40,000.*

### African Economic Research Consortium Fellowship

2017

*Competitive MA/PhD fellowship awarded to promising African economists - \$10,000.*

### Scholarship of Excellence, Catholic University of Bukavu

2014–2015

*50% reduction in academic fees awarded for outstanding academic performance.*

### AUCAM Scholarship

2011–2016

*Supported B.Sc. and M.Sc. studies at UCB through Catholic University of Louvain - \$32,000.*

## CONFERENCE PRESENTATIONS

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**F. Mirindi** (May 29–31, 2025). *Family Size and Child Outcomes in Sub-Saharan Africa: The Role of Social Norms*. Accepted for presentation in the *Progressive Economics Forum Sessions*, University of Manitoba at the 59th Annual Meetings of the Canadian Economics Association, Université du Québec à Montréal.

**F. Mirindi** (January 22, 2025). *Digital Feminism: Intersectionality and Activism in the Age of Social Media*. To be presented at the 2024/25 Graduate Seminar Series, Centre for the Study of Women and Gender (CSWG), University of Warwick.

[Event Link](#)

**F. Mirindi** (November 27, 2024). *From Rubber to Cobalt: Evolving Patterns of Resource Exploitation and Social Impact in the Democratic Republic of Congo*. To be presented at the Graduate Seminars in Economic and Social History, University of Oxford.

[Event Link](#)

**F. Mirindi** (November 24–27, 2024). *A Review of Hybrid Machine Learning Approaches for Enhancing Human-Agent Interaction*. Presented at TheoriseHAI Workshop, 12th International Conference on Human-Agent Interaction (HAI), Swansea, UK.

[Workshop Contributions Page](#)

**F. Mirindi** (September 21, 2024). *Navigating the Digital Frontier: Social and Economic Impacts of Digital Transformation on Communication, Language, and Culture*. Presented at the 1st International Conference on Social Sciences and Economics (IConSE 2024).

[Proceedings Paper](#)

## PROFESSIONAL DEVELOPMENT AND CERTIFICATIONS

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### Diploma in Social Entrepreneurship

2024

École des Entrepreneurs du Québec

- Program delivered through RDEE Canada (Réseau de développement économique et d'employabilité), with a focus on entrepreneurial innovation in francophone minority communities.
- Gained applied knowledge in sustainable business models, social impact assessment, and results-based management—key elements in development and behavioural economics.
- Explored policy frameworks and financing mechanisms that promote inclusive economic development through social enterprise, particularly relevant for economic systems in low- and middle-income settings.

### CPA Preparatory Student – CPA Western School of Business (CPAWSB)

2024 – Present

Currently affiliated as a CPA preparatory student completing foundational coursework in accounting, economics, and quantitative methods.

## RESEARCH INTERESTS

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Econometrics (*causal inference, time series analysis, microeconometrics*), Macroeconomics (*monetary policy, DSGE models, growth dynamics*), Financial Economics (*risk modeling, financial forecasting, asset pricing*)

## SELECTED PUBLICATIONS

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 [Google Scholar](#) (*h-index: 1, as of 2025*)  [ORCID: 0009-0001-1798-9914](#)  [ResearchGate](#) (42.6 Research Interest Score)

### Peer-Reviewed Journal Articles

**F. Mirindi** (with co-authors D. Sinkhonde, T. Bezabih, D. Mirindi, and D. Mashava). *Ensemble Machine Learning Algorithms for Efficient Prediction of Compressive Strength of Concrete Containing Tyre Rubber*

and Brick Powder. *Cleaner Waste Systems*, Elsevier, 2025, 100236.

[Link](#)

**F. Mirindi** (with co-authors D. Mirindi, D. Sinkhonde, and T. Bezabih). *A Review on Aerospace-AI, with Ethics and Implications*. *Journal of Civil, Construction and Environmental Engineering*, 2025.

[Link](#)

**F. Mirindi** (with co-authors D. Mirindi et al.). *Structural Performance of Boards through Nanoparticle Reinforcement: An Advance Review*. *Nanotechnology Reviews*, 13(1), 2024, 20240119.

[Link](#)

**F. Mirindi** (with co-authors D. Mirindi and D. Sinkhonde). *An Advance Review of Urban-AI and Ethical Considerations*. In: *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Advances in Urban-AI*, 2024, pp. 24–33.

[ACM Digital Library Link](#)

## Book Chapters

**F. Mirindi** (with co-authors Derrick Mirindi and Alex Khang). *Artificial Intelligence (AI) and Automation for Driving Green Transportation Systems: A Comprehensive Review*. In *Driving Green Transportation System Through Artificial Intelligence and Automation: Approaches, Technologies and Applications*, Springer, 2025, pp. 1–19.

[Link](#)

**F. Mirindi** (with co-authors Derrick Mirindi and Alex Khang) – Three chapters accepted for publication in: *Revolutionizing Digital Healthcare Through Artificial Intelligence and Automation*, Elsevier, September 2025:

- *Optimizing ML Algorithms for Real-Time Privacy-Preserving Patient Monitoring in Embedded Systems*
- *Integration of AI and AR in Medical Imaging: A Quantitative Analysis of Workflow Optimization and Diagnostic Performance*
- *Revolutionizing Medical Imaging and Diagnostics through Advanced AI and Augmented Reality Technologies*

[Elsevier Book Link](#)

**F. Mirindi**. *Forecasting Energy Prices using Machine Learning Algorithms: A Comparative Analysis*. In *Studies in International Series in Operations Research & Management Science*, Springer. (Accepted, forthcoming 2024)

[Link](#)

## Conference Contributions

**F. Mirindi** (with co-author D. Mirindi). *BIM-Driven Offsite Construction: Pathway to Efficiency, Functionality and Sustainability*. In: *Transforming Construction with Off-site Methods and Technologies Conference*, 2024.

[ResearchGate Link](#)

**F. Mirindi** (with co-authors D. Mirindi and D. Sinkhonde). *An Advance Study of Recycled PP, HDPE and PET Fibers with the Application of Machine Learning to Enhance Concrete Compressive Strength*, 2024.

[ResearchGate Link](#)

## ONLINE PUBLICATIONS AND MEDIA CONTRIBUTIONS

**Author:** Frédéric Mirindi

March 29, 2025

**Title:** *Revolutionizing Science with AI: From Hypothesis Generation to Anomaly Detection*


Medium  [Read Article](#)

- Condensed principal insights from a CEPR webinar regarding the transformative influence of AI on scientific research, including hypothesis formulation and anomaly identification.
- Highlighted the implications of machine learning and large language models for reshaping theoretical development and economic modeling.

**Author: Frédéric Mirindi**

*March 13, 2024*

**Title:** *La Journée internationale des femmes au Manitoba: Célébration et réflexion*


WebOuest, Winnipeg  [Read Article](#)

- Explored gender equality as a pillar of inclusive economic development during International Women's Day celebrations in Manitoba.

**Author: Frédéric Mirindi**

*February 26, 2024*

**Title:** *Célébration de l'héritage et des contributions des Noirs au Canada: Un regard approfondi*

WebOuest, Winnipeg  [Read Article](#)

- Discussed the economic and cultural contributions of Black communities in Canada during Black History Month.

## REFERENCES

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**Professor Julia Witt**

Department of Economics

University of Manitoba

Winnipeg, MB R3T 5V6, Canada

Email: [julia.witt@umanitoba.ca](mailto:julia.witt@umanitoba.ca)

*Additional references available upon request.*

**Professor Ryan Godwin**

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