

BRIAN LLINAS
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Norfolk, Virginia, United States

SUMMARY

Ph.D. student in Computer Science at Old Dominion University, Norfolk, United States. As a Graduate Research Assistant, I have expertise in Machine Learning (ML), Deep Learning (DL), and Natural Language Processing (NLP), with an emphasis on applying Large Language Models (LLMs) to tackle complex societal challenges. My research areas are, but not limited to, news media analysis and application and fine-tuning of LLMs. I have gained a broad range of research experience across different topics, from finance and port logistics to forced migration and text accessibility for visually impaired university students. During my academic career, I have collaborated with universities in Colombia and the United States to develop computational frameworks to analyze media narratives and societal frustration toward migrants in global host communities. I am proficient in multiple programming languages, including R, Python, SQL, and Tableau/Power BI, focusing on creating data-driven solutions that span domains, delivering impactful insights and innovative tools.

EDUCATION

Ph.D. in Computer Science

Old Dominion University, Norfolk, United States [01/2023 – 05/2027 (expected)]

Advisor: Dr. [Michael Nelson](#), Research Lab: [WS-DL](#)

BS. in Industrial Engineering

Universidad del Norte, Barranquilla, Colombia [01/2018 – 12/2022]

SKILLS

- *Software:* Python (Pandas, Numpy, Scikit-learn, LangChain, spaCy, PyTorch, TensorFlow, Keras, Streamlit), R (Tidyverse, Tidymodels, Shiny), Power BI, SQL, PHP, HTML, Javascript,
- *Machine Learning:* Regression, Classification, Clustering, PCA
- *Deep Learning:* optical character recognition (OCR)
- *Natural Language Processing:* Transformers, Hugging Face, Large Language Models, Ollama
- *Version Control:* [Git](#)/[GitHub](#)
- *Language:* Spanish (Native), English (B2), German (A2)

RESEARCH ASSISTANT EXPERIENCE

Graduate Research Assistant, Virginia Modeling, Analysis & Simulation Center [01/2023 – Current]

Advisor: Dr. [Jose Padilla](#) & Dr. [Erika Frydenlund](#), Research Lab: [Storymodelers](#)

- Analyze news media using qualitative and quantitative methods. This involves extracting news URLs with sitemaps and using LLMs (e.g., gpt-4o, LLaMa 3.1 7B) for information extraction, including event classification, extraction of indicators and entities, and their relations and topic identification.
- Fine-tune and improve the knowledge domain with retrieval-augmented generation (RAG) for LLMs, such as name entity recognition, NetLogo coding, and data analysis.
- Create interactive and accessibility tools for non-modelers using Streamlit, such as deep learning

architectures, optical character recognition, and data analysis using LLMs.

- Collaborate and assist with developing grant proposals on new research topics, additionally work with graduate students and international researchers in four countries, representing two university partnerships and comprising a team of over 20 collaborators.
- Connect international graduate students across universities and disciplines through a podcast and no-pressure zone, fostering collaboration and support in sister labs.
- Provide weekly reports to an international team of faculties and partners.
- Presented research results in MSVSCC 2024, in Suffolk, VA, SBP-BRiMS 20023 in Pittsburg, PA, MSVSCC 2023, in Suffolk, VA, and attendance Minerva Meeting & Program Review 2023 in Arlington, VA

SIMAS-UN/ VMASC Storymodelers, Universidad del Norte [03/2022 – 12/2022]

Advisor: Dr. [Katherine Palacio](#), Dr. [Jose Padilla](#), & Dr. [Erika Frydenlund](#), Research Lab: [Storymodelers](#)

- Develop innovative ways using forecasting models like ARIMA and ML to assess qualitatively coded newspaper data from Greece and Colombia to measure “frustration” towards migrants.
- Develop innovative statistical models, such as beta regression and path models, to better understand the frustration of locals toward migrants.
- Collaborate and report weekly to an international team of faculty and partners.

RESEARCH GRANTS

(* Identifies Advisors)

Research Assistant, OSD Minerva Research Initiative, “Un-Resilience: Drawing Insights from Societal Collapse,” October 2024 – October 2026. \$1.5M. (PI: Jose J. Padilla* (ODU USA); Co-PIs: Erika Frydenlund*, Faryaneh Poursardar, Krzysztof Rehowicz, Joshua Behr, Katherine Palacio and Humberto Llinas (UniNorte), Eteri Tsintsadze-Maass (Hampton)

Research Assistant, US Department of Education, “Graduate Research Opportunities and Workforce Readiness in Modeling and Simulation (GROW M&S),” January 2022 – December 2024. \$1.15M (PI: Jessica Johnson (ODU VMASC); co-PIs: Jose J. Padilla*, Erika Frydenlund*, Sachin Shetty, Masud Rana, Yiannis Papelis, Krzysztof Rehowicz, Rafael Diaz, Katherine Smith, Michael Nelson, Deri Draper-Amason, Heather Richter).

EXPERTISE SUPPORT FOR RESEARCH GRANTS

(* Identifies Advisors)

Research Assistant, OSD Minerva Research Initiative, “Computational Framework for Assessing Absorptive Capacity,” September 2019 – September 2022. \$1.5M. (PI: Jose J. Padilla*; Co-PIs: Erika Frydenlund*, Joshua Behr and Michael Allen (ODU), Apostolos Spanos (UiA), Ioannis Spilanis (U. of Aegean), and Fred Bidandi (U. of Western Cape))

PUBLICATIONS

(* Identifies Advisors)

Peer-Reviewed Journal Articles

Peer-Reviewed Conference Papers

Martínez, J., **Llinas, B.**, Botello, J. G., Padilla, J. J., & Frydenlund, E. (2024, December). Enhancing GPT-3.5's

Proficiency in Netlogo Through Few-Shot Prompting and Retrieval-Augmented Generation. In *2024 Winter Simulation Conference (WSC)* (pp. 666-677). IEEE.
<https://doi.org/10.1109/WSC63780.2024.10838967>

Llinas, B., Huseynli, G., Frydenlund, E., Palacio, K., Llinas, H., & Padilla, J. J. (2023, September). Assessing Media's Representation of Frustration Towards Venezuelan Migrants in Colombia. In *International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation* (pp. 126-135). Cham: Springer Nature Switzerland.
https://doi.org/10.1007/978-3-031-43129-6_13

Non-Peer-Reviewed Conference Presentations

Llinas, B., Huseynli, G., Frydenlund, E., Palacio, K., & Padilla, J. (2023). Assessing Frustration Towards Venezuelan Migrants in Colombia: Path Analysis on Newspaper Coded Data. <https://doi.org/10.25776/8zfy-w222>.

Llinas, B., Botello, J.G., Martínez, J., McLeod, M., Miller-Felton, M., Frydenlund, E*, & Padilla*, J.J*. (2024). AI-Driven App for Accessibility in Education: Converting Scanned Documents to Readable Text for Students with Low Vision.

Papers in Progress

Botello, J.G., **Llinas, B.**, Padilla, J. J*, & Frydenlund, E*. Toward Automating System Dynamics Modeling: Evaluating LLMs in the Transition from Narratives to Formal Structures. [*Accepted for WSC 2025*].

Hossen, MDFB, **Llinas, B.**, & Wu, J. SEMRank: A Hybrid Ranking Framework for Zero-shot Science and Technology Document Retrieval. [*Working for JCDL 2025*].

Llinas, B., Padilla, J. J*, Frydenlund, E* & Nelson, ML*. RAG-TEC: A framework for Extracting and Classifying Topics in News Micro-Collections Using LLMs. [*Working for JCDL 2025*].

Llinas, B., Padilla, J. J*, Llinas, H., Palacio, K., & Frydenlund, E*. Modeling Rank Distribution and The Relative Importance Factor Index in Power-Law Models: Application to Social Resilience Using Scopus Database. [*Working for Scientometrics*].

Llinas, B., Frydenlund, E*, Palacio, K., Llinas, H., & Padilla, J. J*. Leveraging Power-Law Analysis for Frustration Towards Migrants in Greece and Colombia: Insights from Newspaper-Coded Data. [*Working for Nature Computational Science*].

MEDIA & OTHER OUTREACH

Brian Llinas. (January 23, 2025). Connecting the Dots: The Tale Behind Our Website's Portrait. <https://www.storymodelers.org/post/better-together>

Brian Llinas. (January 22, 2025). 2025-01-22: From Narrative to Conceptualization: The Role of Large Language Models in Modeling & Simulation. <https://ws-dl.blogspot.com/2025/01/2025-01-22-from-narrative-to-conceptualization.html>

Brian Llinas. (January 16, 2025). 2025-01-16: Do Large Language Models Agree on Entity Extraction? <https://ws-dl.blogspot.com/2025/01/2025-01-16-do-large-language-models.html>

Brian Llinas. (July 31, 2024). 2024-07-31: Improving Learning for All: How AI-Driven App Converts Scanned Documents to Readable Text for Low Vision Students. <https://ws-dl.blogspot.com/2024/07/2024-07-31->

[improving-learning-for-all.html](https://ws-dl.blogspot.com/2024/01/2024-01-29-16th-international.html)

Brian Llinas, Jhon Botello and Himarsha Janetti. (January 29, 2024). 2024-01-29: 16th International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS) 2023 Trip Report. <https://ws-dl.blogspot.com/2024/01/2024-01-29-16th-international.html>

Joseph Martinez, Brian Llinas, and Melissa Miller-Felton. (May 11, 2023). The Process of Brainstorming Big Ideas. <https://www.storymodelers.org/post/the-process-of-brainstorming-big-ideas>

Brian Llinas. (March 18, 2023). 2023-03-16: My journey to ODU WS-DL Group. <https://ws-dl.blogspot.com/2023/03/2023-03-16-my-journey-to-odu-ws-dl-group.html>

WORK EXPERIENCE

Data Scientist, DataLeik S.A.S. [09/2022 – 12/2022]

- Extract, clean, and visualize customer data from a cloud server. Implement machine learning models to create prescriptive and predictive models.

Junior Data Scientist, Fintra S.A.S. [07/2022 – 09/2022]

- Extract, clean, and visualize customer data from a cloud server. Implement machine learning models to create prescriptive and predictive models.

Bilingual Customer Service Representative, Teleperformance CO [11/2021 – 01/2022]

- Responded to and resolved customer inquiries in English and Spanish.

Freelance Data Scientist [2020 – 2022]

- Built a dashboard for probabilistic distributions, conducted bibliometrics, text mining, and survey analysis in R.

Assistant Consultant, Universidad del Norte, AventurEmoNos en Familia Program. [2021 – 2022]

- Performed survey statistical analyses from two databases using R software.

Smart Cities and Smarts Ports - Universidad del Norte [02/2022 – 12/2022]

- Contribute to projects and sessions on logistics and simulation.

Analytics Research Lab, Universidad del Norte [08/2020 – 12/2022]

- Contribute to projects on data analytics, machine learning, and data science.

Operations Research SIO, Universidad del Norte [08/2020 – 12/2022]

- Contribute to projects and sessions on operation research.

Asociación Nacional de Estudiantes de Ingeniería Industrial, Productiva y Administración (ANEIAP), Universidad del Norte [01/2019 – 12/2022]

- Contribute to projects on Industrial Engineering. Serve as Finance Director and Chair.

Data Challenge Participant, Centro de Excelencia en Sistemas de Innovación (CESi) [12/2020 – 04/2021]

- Built a data dashboard of restaurant customers' perceptions in the Atlántico state and provided descriptive information about local restaurants using R.

TEACHING ASSISTANT EXPERIENCE

Engineering Data Analysis II (College of Engineering)

Universidad del Norte [08/2022 – 07/2022]

Integral Quality Management and Control (College of Engineering)

Universidad del Norte [08/2022 – 07/2022]

Engineering Data Analysis I (College of Engineering)

Universidad del Norte [01/2021 – 07/2021]

HONORS AND AWARDS

- *Graduate Research Assistantship – Virginia Modeling Analysis & Simulation Center [01/2023]*
- *Distinguished student of the Industrial Engineering program Universidad del Norte [12/2022]*
- *'Auxilio Pacto Colectivo' Scholarship Universidad del Norte [01/2018]*
- *Academic Excellence Award Colegio Sagrado Corazón de Jesús, Via Puerto Colombia [12/2017]*

UNIVERSITY PROJECTS

Final Project: Design of a machine learning model for predicting academic performance based on resilience (Postulated to CUM LADE thesis) [01/2022 – 06/2022]. Description: Classification models were designed using the techniques of Decision Trees, Random Forest, and XGBoost using the scikit-learn package in Python. [Link](#)

Engineering Data Analysis II Final Project: Dashboard for Road Accidents in the United Kingdom [12/2020]. Description: Dashboard in R integrates structured data of the records of different accidents that occurred in the UK, an interactive map with the location of the accidents, statistics, and a logistic regression model to classify the accident's severity. [Link](#)

Analytics Research Lab Mini Project: Predictive Maintenance with Machine Learning Models [08/2020 – 09/2020]. Description: A prototype data science application in R as a proposed solution to enterprise-level problems focused on predictive maintenance systems with machine learning models. [Link](#)