

Luis Castellanos

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Education

Purdue University

B.S. in Mathematics & B.S. in Data Science

Aug. 2021 — Dec. 2025

West Lafayette, IN

Relevant Coursework

Mathematics: Discrete Math, Modern Algebra, Complex Analysis, Real Analysis, Intro to Fourier Analysis, Ordinary Differential Equations, Stochastic Processes

Data Science / Computer Science: Data Mining and Machine Learning, Linear Programming, Data Structures and Algorithms, Foundations of Computer Science, Intro to AI, Intro to Data Science, Large-scale Data Analytics, Problem Solving and object oriented programming, Data Science Capstone

Statistics: Intro to Probability Theory, Statistical Theory

Projects

Java Marketplace Program (repo)

Java, OOP, Swing, Java Sockets, Serializable

- Designed and implemented most of the backend/business logic (Product, Store, Seller, Customer) with validation (e.g., unique product constraints) and analytics dashboards for sales.
- Built a client-server app: Swing GUI for buyers/sellers (ClientGUI.java) talking to a socket server supporting listing, search, sort, cart, and checkout flows.
- Persisted state with Java Serialization (.ser) to avoid brittle text file edits and simplify I/O.

Homelab Server Deployment

Ubuntu Server, CasaOS, Tailscale, Plex, Crafty, ollama

- Built a self-hosted homelab for media and services: deployed CasaOS apps (Plex, Crafty for Minecraft), and local LLM inference with ollama.
- Setup remote access via Tailscale (SSH) and documented network/port-forwarding considerations for secure remote access.

Carcassonne Markov Chain Model (report)

Python, NumPy, Stochastic Processes

- Formulated a finite-state Markov model (32 states: board endpoint pattern + player turn) with tile-based transition probabilities; implemented simulation/analysis in Python.
- Derived game dynamics: first-mover advantage and expected game length ($\approx 12-16$ turns depending on initial conditions); summarized results in a technical report.

Personal Website

Jekyll, GitHub Pages

- Built and maintain a responsive academic site hosting CV, notes, and projects; optimized structure for readability and fast, no-cost hosting.

Technical Skills

Programming: Python (NumPy, pandas, scikit-learn, Matplotlib, plotnine), Java, R, Matlab, ~~TeX~~

Data/ML: Supervised & unsupervised learning, PCA, Regression, model evaluation, Data Visualization, Optimization

Tools: Git, Jupyter, GitHub Pages, MySQL, PyTorch

Languages: Spanish (native), English (fluent/bilingual), German (beginner)

Certifications / In Progress

Google Analytics: Foundations, Data, Data, Everywhere (in Progress)

Amazon: Getting Started with AWS and Data Analytics (in progress)

Additional

Please refer to my website where you'll learn more about me and the projects I've worked on.

Hobbies: Classical Guitar, Grilling, and Tech Tinkering