Dominique Desert

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I am a techie. I am a full-stack developer but have an intense interest in Data Science, Machine Learning, and AI. I built and sold my first app, CoreIdea, that processes files and generates notes at 15. I am passionate about using technology to solve real-world problems through AI, data, and scalable apps.

**💼 Work Experience**

Freelance Developer

*February 2021 - Present*

* Created custom scripts and light weight web apps for friends and family
* Built automation tools, simple websites, and more
* Helped non-technical users solve real-life problems using technology

Founder - *DataViz (Independent Project)*

*April 2025-Present*

* Flask app for auto-visualizing CSV
* Cleans data, removes outliers, performs PCA + KMeans
* Creates charts and visual summaries
* 200+ weekly users

🔗 [Live App](https://dataviz-czmf.onrender.com/) 🧑‍💻 [Github](https://github.com/dominiquedes/DataViz)

Full Stack Engineer - *CoreIdea* *(Independent Project)*

*June 2024 - August 2024*

* Built and sold a file to a Markdown web app (React, Python, Firebase)
* Exited with a 4-figure deal in the first week
* Onboarded 100+ users in the first week

Full Stack Engineer - Independent Developer

2023 - Present

* Developed and published Firebase-Populator on PyPI, a Python package with 1000+ downloads that automates database population
* Created and successfully sold CoreIdea, a notetaking application, generating over $1.5k in revenue
* Built and maintained DataViz platform, serving 200+ weekly active users for data visualization needs
* Built PeerMatch, a social networking platform for students featuring real-time chat functionality

Machine Learning and Data Science Engineer - Independent Research

2024 - Present

* Developed machine learning models achieving 87% accuracy in Airbnb price prediction
* Designed and implemented neural networks for complex pattern recognition in large datasets
* Created efficient data processing pipelines handling thousands of records
* Conducted a thorough analysis of market trends and pricing factors in the hospitality industry

**🛠️ Projects**

Firebase-populator- *Python Package for Database Seeding*

* Automates Firestore data generation
* Python

🔗 [PyPI](https://pypi.org/project/firebase-populator/) | [Stats](https://pypistats.org/packages/firebase-populator)

Airbnb Price Prediction - *Neural Network, XGBoost, Random Forest*

* Airbnb price prediction using deep learning and ensemble models (NN, XGBoost, RF)
* MAE of $11.30 and R² of 0.87 using feature engineering and model stacking
* Automated preprocessing pipeline with data validation, outlier removal, and interaction features
* Optimized Neural Network using BatchNorm, dropout, Huber loss
* Visualized results using error distribution, feature importance, and performance across price ranges
* Pandas, numpy, matplotlib, seaborn, tensorflow, xgboost, scipy, scikit-learn

🧑‍💻 [Github](https://github.com/dominiquedes/airbnb_ml_nn/tree/main)

PeerMatch - *Study Partner Matching Platform*

*April 2025 - Present*

* Web application that matches students with compatible partners from the onboarding form
* Used advanced algorithms to enhance matching relevance
* Used AI to analyze subject relationships and improve match accuracy
* ReactJS, Firebase

🔗 [Live App](https://peermatch.vercel.app/) 🧑‍💻 [Github](https://github.com/dominiquedes/peermatch)

ML and AI Comparison - *Tips Dataset*

*April 2025-Present*

* Regression model using scikit learn to predict tipping behavior
* Applied PCA for dimensionality reduction, improving model clarity
* Compared Linear Regression and Neural Network models using MAE
* Numpy, pandas, seaborn, matplotlib, scikit-learn

🧑‍💻 [Github](https://github.com/dominiquedes/ml_ai_project)

**📚 Education**

Saddle River Day School - Saddle River, NJ

High School - 3.8/4.0

*September 2024 - June 2026*

* Relevant Coursework: Data Science, Product Development, CS Research Project
  + Building a school-wide tutor app
  + Developing Machine Learning models and Neural Networks for predictive analytics
  + Working on data visualization, engineering, and AI Integration
* Awarded Dean’s list

Applied Technology High School & Bergen Community College - Paramus, NJ

Mechatronics

High School - 3.5/4.0

*September 2021 - February 2024*

* Relevant Coursework: Fusion 360 Certified, proficient in C
* Awarded Honors list

Harvard CS50 Course

Online Course

June 2022 - September 2022

* Learnt the basics of computer science

**💻 Skills**

Languages: Python, JavaScript, TypeScript, SQL, HTML/CSS, C++

Frameworks & Libraries: React.js, Next.js, Node.js, Flask, Django, TensorFlow, PyTorch, Scikit-learn, Pandas, TailwindCSS

Tools & Platforms: Firebase, Firestore, Supabase, MongoDB, Git, Docker, AWS

Focus Areas: Machine Learning, Data Science, AI, Full-Stack Development, API Development, Database Design