# Mendoza Justin Konrad Liwag

**Aspiring AI Engineer & Data Science Intern**
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## 🧠 Professional Summary

Self-directed learner transitioning from UX design and creative ventures into machine learning and AI engineering. Since 2024, I've been fully immersed in Python, data science, and core ML concepts through rigorous self-study and applied projects. I code efficiently using Vim, navigate Git and Linux with ease, and continuously deepen my understanding of algorithms, model building, and system design. My curiosity is my compass, and I'm loving every step of this new chapter.

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## 🛠️ Technical Skills

**Languages & Tools:** Python, Git, Linux, Vim
**Libraries & Frameworks:** scikit-learn, pandas, NumPy, SQLite, SQL
**Concepts:** Object-Oriented Programming, algorithm design, asynchronous learning, modular pipelines, bash scripting
**Workflow Highlights:** Reproducible ML pipelines, GridSearchCV, ColumnTransformer, SHAP, SMOTE

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## 🚀 Core Strengths

- **Quick Learner:** Picked up Python, version control, and ML fundamentals in months
- **Self-Driven:** Progressing through AIAP Foundation independently with hands-on project completions
- **Efficient Coder:** Uses Vim and modular design for fast, scalable workflows
- **Curious & Experimental:** Eagerly exploring time series, PCA, unit testing, model deployment, and neural networks
- **Adaptable Thinker:** Brings design thinking into problem-solving and feature engineering

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## 📊 Machine Learning Project Highlights

### Bank Marketing Campaign Prediction

Classification Pipeline | Python, scikit-learn, pandas, numpy, YAML

Developed an end-to-end Pythong pipeline to predict whether customers would subscribe to a term deposit using the UCI Bank marketing data.

- Performed comprehensive EDA and feature engineering, handled imbalanced classes and trained multiple classifiers (Logistic Regression, Random Forest, SVM, Knearest Neighbors, Gradient Boosting Machine) within a Pipeline().
- Tuned hyperparameters with `GridSearchCV` and optimized decision thresholds to balance precision and recall.
- Leverages SHAP for model interpretability, identifying key customer attributes that most influence conversion

**HDB Resale Price Prediction**
*Regression Pipeline | Python, scikit-learn, pandas, YAML*
Built a modular ML pipeline to forecast HDB flat resale prices using structured data.

- Used `config.yaml` for parameter control and repeatability
- Tuned hyperparameters with `GridSearchCV`
- Engineered features from lease terms, flat types, and storey range
- Evaluated using MAE, RMSE, and $R^2$

**Student Score Prediction**
*Regression Pipeline | Python, scikit-learn*
Predicted student performance using demographic and academic data.

- Achieved **$R^2$ = 0.79** after model tuning
- Tested KNN, SVR, RF, GBM
- Employed `ColumnTransformer`, `GridSearchCV`, and modular script structure
- Prioritized interpretability and reusability

**Solar Panel Efficiency Classifier**
*Multiclass Classification | Python, SQLite, pandas*
Classified solar panel efficiency (Low/Medium/High) based on weather and air quality.

- Merged multiple data sources and built 27 derived features
- Modeled using Random Forest, SVM, KNN, and Boosting
- Evaluation via F1-score, Recall, and Confusion Matrix
- Ongoing: Adding `ColumnTransformer`, balancing techniques, and tuning

**AgroTech: Temperature & Plant-Type Prediction**
*Regression & Classification | Python, SQLite, IterativeImputer*
Dual-model pipeline for predicting farm temperature and plant growth stages.

- Cleaned complex sensor data and engineered new features
- Combined plant type + stage into a multiclass target
- Models used: Linear Regression, Random Forest, KNN, SVC
- Evaluation via MAE, RMSE, Precision, F1-score

- In-progress: Wrapping preprocessing in `ColumnTransformer` and adding tuning

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## 💼 Professional Experience

**UX Designer | Breathonix**
*2022 – 2023*
Designed the full user experience for MetaNose, a clinically backed handheld breathalyzer for health tracking.

- Led user research and prototyping
- Designed app UX for ketosis monitoring, glucose tracking, and fat-loss guidance
- Applied Design Thinking to prototype and test at speed

**Freelance UX Designer**
*2021 – 2022*
Worked with product teams across the US and Singapore on healthcare and social good platforms.

- **Hubble Connected (US):** Designed core flows and design system for baby monitor app
- **Hawker Heroes (Bootcamp):** Created app concept and screen designs to support local hawkers
- **Care Corner SG:** Reimagined staff intranet UX to align with company values

**Swab Supervisor & Trainer (Covid Frontliner)**
*2020 – 2021*
Helped train and deploy safe testing practices during Singapore's Covid-19 response.

- Trained hundreds of personnel in ART and nasopharyngeal swabbing
- Conducted mask fitting and SOP briefings for medical teams

**COO & Co-Founder | The Music Parlour Pte Ltd**
*2015 – 2020*
Co-ran a boutique music studio supporting local artists with recording, mixing, and production.

- Produced music for 200+ clients
- Managed studio operations and client relations
- Used DAWs like Logic Pro, Ableton, Pro Tools

**Architectural Assistant**
*2013 – 2016 | Park + Associates, Architrave Pte Ltd*
Supported concept design and development for luxury homes and resorts.

- 3D modeling (SketchUp, 3ds Max), CAD drafting (AutoCAD, Revit)
- Assisted with high-end projects including Banyan Tree Resorts and private landed properties

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## 🎓 Education & Training

- **AIAP Foundation (Ongoing)** – AI Singapore
- **Diploma in Architecture** – Singapore Polytechnic
- **Diploma in Music Production & Audio Engineering** – SOMA

**Short Courses:**

- *CS50: Introduction to Computer Science* – HarvardX (Ongoing)
- *Practical Deep Learning for Coders* – fast.ai (Ongoing)
- *Machine Learning Specialization* – Andrew Ng (Coursera, Ongoing)
- *Code in Place* – Stanford University (Completed)

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## 🪖 National Service Contribution

Completed 10-year NS cycle as MTO and Platoon Commander for 799 SIR
Currently exploring ULOC and S4 leadership opportunities in future cycle