

WONHA SHIN

PORTFOLIO & DEMOS

 [Portfolio](#) |  [TaxBot Demo](#) |  [Real-Time LLM Pipeline](#)
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PROFILE AI Engineer / Data Scientist | Scalable ML Systems & Intelligent Automation

Hands-on AI Engineer with experience bridging data science and engineering to build real-time, production-grade AI systems. Skilled in developing data-driven **automation pipelines** and **predictive modeling workflows** that transform raw data into actionable intelligence. Proven track record in **Kafka**- and **FastAPI**-based system design, observability with **Prometheus**, **Grafana**, and **W&B**, and cloud-native **MLOps** for scalable deployment and monitoring.

SKILLS & PROJECTS

- **Data & ML Systems:** Kafka, FastAPI, Docker, CI/CD, Prometheus, Grafana, SQL
- **Applied AI & LLM Engineering:** LangChain, Transformers (HF/OpenAI), Pinecone, LangSmith
- **Real-Time Data Engineering:** PySpark, Databricks, Delta Lake, Airflow, Stream Processing & ETL
- **MLOps & Observability:** MLflow, Weights & Biases (drift & metrics), Automated Retraining Pipelines
- **Prototyping & Automation:** Agentic AI Design, Structured/Unstructured Data Workflows, REST API Integration
- **Programming & Dev Tools:** Python (Pandas, Scikit-Learn, PyTorch), R, GitHub Actions
- **Cloud Platforms:** AWS, Azure ML, ACR/ACI, Monitoring & Infrastructure Optimization

- **Real-Time AI Translation & Monitoring System** | *Kafka • FastAPI • Hugging Face • W&B (Demo)*
 - Designed and deployed a real-time multilingual processing system handling **10K+ concurrent events** with **sub-millisecond response** through Kafka-streamed inference services.
 - Automated operational insights with **BLEU-based quality scoring** and **drift dashboards** linked to retraining triggers in W&B.
 - Built **end-to-end observability** using Prometheus/Grafana for system health (latency, throughput, fault events) ensuring high availability.
 - Fully containerized deployment built independently in a **production-style, startup environment**.

- **Agentic RAG Chatbot – TaxBot** | *LangChain • OpenAI • Pinecone • Streamlit • LangSmith (Demo)*
 - Built a **multi-turn RAG agent** with function calling, retrieval orchestration, and memory-aware contextual reasoning.
 - Managed embeddings & search using **Pinecone**, served via **FastAPI**, and built interactive UI in Streamlit
 - Optimized prompts using LangSmith metrics (**Faithfulness 0.85** | **Helpfulness 0.95**), reducing hallucination and improving reliability.

- **Real-Time Tweet Sentiment Analysis Pipeline** | *Databricks • PySpark • AWS • Delta Lake*
 - Engineered a **streaming sentiment analysis pipeline** with **Bronze/Silver/Gold Delta architecture**, enabling **fault-tolerant ETL** and low-latency analytics.
 - Deployed model tracking and KPI dashboards using **MLflow** and **Databricks SQL**, supporting real-time monitoring and alerting for tweet sentiment trends.

ADDITIONAL PROJECTS

- **Microsoft Azure MLOps Pipeline** | *Azure ML • Docker • GitHub Actions • ACR/ACI*
 - Created automated **CI/CD pipelines** for ML model retraining and containerized deployment using **Docker + GitHub Actions**. Integrated **Azure Container Registry (ACR)** and **Azure Container Instances (ACI)** for reproducible, scalable deployments improving retraining efficiency and deployment reliability.
- **Cross-Cultural E-Cigarette Perception Analysis** | *Python • BERTweet • BERTopic • SQL*
 - Conducted **multilingual NLP research** on 100K+ social posts; fine-tuned **BERTweet** achieving > 94 % classification accuracy. Combined **BERTopic + LDA** for cross-linguistic topic extraction to inform **public-health communication strategies**.
 - Provided data insights to support health communication and policy research
- **200-Day ML & MLOps Challenge (2024–2025)** | *GitHub + LinkedIn Public Learning Series*
 - 200+ detailed study logs integrating MLOps, drift handling, monitoring, and deployment patterns.
 - Demonstrates commitment to engineering excellence + rapid learning + documented growth. See [project summary PDF](#).

PROFESSIONAL EXPERIENCE

BSGH Lab — Behavioral, Sexual, and Global Health Research Lab

Remote

Research Internship

Jul 2024 – Present

- Performing **multilingual text analysis** and building **visualization pipelines** for global health communication research.

VOESH New York

South Plainfield, New Jersey

Administrative Accounting Specialist

Oct 2018 – Mar 2023

- Designed **predictive ML models** and automated **data pipelines in Oracle SQL**, improving forecast accuracy by 15 %.
- Collaborated with technical and finance teams to **streamline reporting workflows** across 10K+ client accounts.

EASTERN AMERICAN CDC (Non-Profit Federal Community Bank)

Englewood, New Jersey

Credit Analyst Intern

May 2018 – Oct 2018

EDUCATION

University of Rochester – M.S. in Data Science | GPA 3.43 / 4.0

Aug 2023 – Dec 2024

- **Capstone Project**: Multilingual NLP Analysis using Transformers (**100K+** posts)

Pusan National University – B.A. in International Business & Economics (Cum Laude) | GPA 3.73 / 4.0

- Completed honors-level coursework in **econometrics, quantitative analysis, and finance**.