## **Skills Summary (with Usage Context)**

### **🔷 Frontend Development**

Core technologies for UI design and interaction in websites, dashboards, and client projects.

* **HTML5, CSS3, JavaScript, TypeScript** – Web foundation, used across portfolio and project UIs
* **React.js** – Advanced usage in portfolio, dashboards, and dynamic forms
* **Next.js** – Server-side rendering & static site generation for optimized personal projects
* **Tailwind CSS, Bootstrap** – Utility-first & component-based styling frameworks
* **Framer Motion, Shadcn/UI** – Animation and UI component libraries (used in portfolio site)
* **Responsive Web Design** – Mobile-first layouts and accessibility-first practices

### **🔷 Backend Development**

Building secure APIs, services, and full-stack applications for projects and coursework.

* **Python (FastAPI, Flask, Django)** – REST APIs, portfolio backend, ML app backend
* **Node.js** – API servers and integration logic (e.g., contact form, database sync)
* **PHP** – Used in college projects like Online Placement System and personal project like Basic File Manager
* **Java (OOP, API)** – Academic experience in scalable backend logic
* **C, C++** – Academic usage in algorithm and system-level computing
* **C#** – Used in Unity game development (2D/3D platformer project)
* **Progress ABL (OpenEdge)** – Used during internship experience
* **SQL, MySQL, PostgreSQL** – Relational DBs used across portfolio backend & AI project storage
* **MongoDB, DynamoDB** – NoSQL used for scalable or cloud-ready apps
* **REST APIs, Authentication (JWT, Clerk)** – Secure communication between frontend and backend

### **🤖 AI & Machine Learning**

Practical and academic application of machine learning models, NLP, and LLMs.

* **Pandas, NumPy, Scikit-learn** – Data cleaning, exploration, classification
* **Matplotlib, Seaborn** – Data visualization and statistical graphics
* **Jupyter, Google Colab** – Research notebooks and model training environments
* **NLP, NLTK, Sentiment Analysis** – Applied in Twitter & comment classification systems
* **LLMs (OpenAI GPT-3.5/4, Gemini, Mistral, Ollama)** – Used in resume-based AI (GemAI)
* **LangChain, FAISS, RAG** – Retrieval-Augmented Generation with vector search
* **XGBoost, Prophet** – Advanced modeling and time series forecasting (e.g. NYC Electricity Project)
* **TensorFlow** – Academic experiments and generative model prototyping
* **Generative AI** – Built text/image generation pipelines (DALL·E 3, Gemini)

### **📊 Data & Visualization**

Used in academic analysis, dashboards, and project-based decision making.

* **SQL, MySQL, PostgreSQL** – Querying and managing structured data
* **Power BI, Tableau** – Visual storytelling for Food Pantry Analysis and course projects
* **Jupyter, Google Colab** – Exploratory data analysis notebooks
* **Google Suite (Sheets, Docs, Slides)** – Daily collaboration and visualization aid
* **Microsoft 365 (Excel, Word, PowerPoint)** – Used for project documentation, analysis, and presentations

### **🛠️ Dev Tools & Workflow**

Daily development tools, IDEs, and collaboration workflows.

* **Git & GitHub, TortoiseSVN** – Version control for academic, personal, and team projects
* **VS Code, Postman** – Core development environment and API testing
* **Linux, Terminal Basics** – Regular use in Python/Node projects and AI workflows
* **Docker (basic)** – For containerizing local Python and ML environments
* **Agile & Scrum** – Used in team collaboration, sprint planning, and internship roles

### **🚀 Deployment & Platforms**

Hosting, cloud deployment, and runtime platforms used across projects.

* **Firebase, Supabase** – Backend-as-a-Service platforms for user auth & real-time DBs
* **Amazon AWS (EC2)** – Deployed a Airlines App and used in coursework
* **Vercel, Render, Railway** – Portfolio and frontend hosting platforms
* **Unity (Game Dev)** – Built 2D/3D platformer game using C# and tile-based systems
* **Anaconda** – Python environment management for ML pipelines
* **Visual Studio** – Used with C#, game dev, and class assignments

### **📎 Productivity & Communication Tools**

Tools for managing school, project work, scheduling, and daily tasks.

* **Google Calendar, Keep, Gmail, Meet, Drive** – Daily coordination, personal tracking
* **Microsoft Teams, Outlook** – Used in academic collaboration and internship communication
* **Canva, Adobe Photoshop** – Design tools for social posts, thumbnails, and presentations
* **Slides & PowerPoint** – Used extensively in presenting Food Pantry & forecasting projects

## **✅ Final Notes for AI Agent Use**

* Each item includes **technology, context**, and **application use-case**
* The format supports **prompt-based extraction** (e.g., “What ML tools has he used for NLP?”)
* Suitable for response generation, resume parsers, or AI portfolio agents