Phongphat Bangkha

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Summary

Third-year Computer Science student seeking a Cooperative Education opportunity, with a keen interest in **Data Science** and **AI**. Built on a solid foundation in **Software Engineering** and **Web Development**. A responsible learner with a strong sense of ownership, committed to delivering high-quality software solutions and completing assigned tasks effectively.

Education

King Mongkut's University of Technology North Bangkok **Expected Graduation: May 2027**
Bachelor of Computer Science *Bangkok, Thailand*

- GPA: 3.68
- Key Courses: Software Engineering, Machine Learning, AI Software Development, Data Structures, Design & Analysis of Algorithms

Projects

OmniMetric | *Source Code* **Next.js | Python | YOLO | Depth Pro | PostgreSQL**

- **Status: In Progress** (Capstone Project). A spatial analysis web app for standard and **360° panoramic images**.
- Engineered an interactive viewer where users select **YOLO-detected objects** or click **any pixel** to reveal real-world metric distances derived from AI depth maps.
- Implementing an automated scene tagging system using **ResNet50** (Places365) to categorize images (e.g., "Forest", "Office") for a smart search feature.
- Designed a **PostgreSQL** schema to store analyzed projects, preserving user-uploaded images, depth matrices, and object coordinates for future retrieval.

TravelLens | *Source Code* **TensorFlow | FastAPI | ReactJS | Supabase (Vector DB)**

- Developed a **Content-Based Image Retrieval (CBIR)** engine that acts as a "Reverse Search" for travel locations.
- The system analyzes uploaded photos using **ResNet50** and returns the **Top-K** most similar locations, ranked by visual similarity using vector embeddings.
- Built a high-performance **FastAPI** backend to handle image preprocessing and model inference, serving results to the client via REST endpoints.
- Optimized query speed using **Approximate Nearest Neighbor (ANN)** search within Supabase (pgvector) to handle large image datasets efficiently.

QuickBites | *Website* | *Source Code* **ReactJS | MongoDB | ExpressJS | WebSocket**

- Architected a **dual-interface** restaurant system: a customer ordering app and a real-time **Employee Dashboard**.
- Implemented a **QR-Code flow** where unique links automatically bind user sessions to specific tables.
- Built a real-time command center using **Socket.io**, allowing staff to manage table availability (Open/Close) and update order statuses instantly across all devices.
- Utilized **MongoDB** to structure complex order data, linking menu items to specific table sessions and tracking order states (Pending, Cooking, Served).

ML & Neural Networks Showcase | *Website* | *Source Code* **Python | Streamlit | Scikit-learn | Pandas**

- Developed a 5-module educational dashboard to visualize Machine Learning concepts and Neural Network architectures.
- Created interactive pages for **Model Experimentation**, allowing users to adjust parameters on static datasets to observe performance metrics in real-time.

Technical Skills

Languages: Python, Java, SQL, C, C++, JavaScript, TypeScript

AI & Data Science: TensorFlow, OpenCV, YOLO, Scikit-learn, Pandas, NumPy, Supabase (Vector DB)

Backend & Infrastructure: FastAPI, Docker, PostgreSQL, MongoDB, Node.js, Express.js, Git, Postman

Web Technologies: Next.js, React, Tailwind CSS, HTML5