

PORTFOLIO

COMPUTER ENGINEERING

KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG



 PATTAKORN KIATSUPAPONG 

TRIAMUDOMSUKSA PATTAKARN SCHOOL

PERSONAL INFORMATION



NAME : Pattakorn Kiatsupapong

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EDUCATION



High School 2019-2025

Triamudomsuksa Pattanakarn School



Primary School 2013-2019

Piyajitvittaya School

SKILLS



Python



C



C++



HTML



CSS



Java Script





STATEMENT OF PURPOSE

Since elementary school, I have spent free hours on mobile devices, tablets, and games. One day, I asked my father, a computer engineer, what makes these things work. He explained that they run on complex computer programs, and that answer sparked a deep fascination in me. I started learning Python language with friends and tried creating small projects, which made me feel an undeniable pull toward technology. I became eager to learn more, eventually asking my father about the technology behind tech giants like Facebook, Microsoft, and Google. These discussions showed me how significant technology is in shaping the future of fields like business, communication, and education. Growing up in a computer science environment with family and friends encouraged me to pursue my interests and deepen my skills in computer science, inspiring me to envision a career that contributes to global advancements through technology. This journey has truly inspired me to pursue a career in this field.

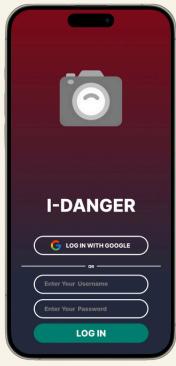
My first programming language, which I started learning in elementary school, was Python. I taught myself coding and project development using resources like YouTube and Google, which allowed me to build a solid foundation and improve my skills independently. Initially, I spent a lot of time experimenting and learning through trial and error, including solving coding challenges on platforms like HackerRank and Programming.in.th. Later, in high school, I joined various competitions, such as national robotics tournaments and school-level coding contests, where I handled most of the coding. These experiences not only strengthened my computational thinking and coding skills but also led to my selection as a school representative in different projects. Teaching myself to code taught me “the value of perseverance and hard work.” Facing coding errors and unexpected outcomes encouraged me to keep improving and develop skills in planning and complex problem-solving, ensuring I achieved effective results. Additionally, I dedicated time to improving my English, recognizing its importance in the tech industry. Despite studying in a Thai educational system that made it challenging to master the language, I took the IELTS exam five times to pursue the best possible scores. Even when faced with disappointments, I remained undeterred in my commitment to continuous improvement, determined to achieve my language goals and contribute more effectively in the future.

During my high school years, I had the opportunity to participate in various hackathons and collaborate with my friends on a project aimed at helping road accident victims. Today the increasing number of road accidents and the often slow response times from rescue teams, I was motivated to contribute by creating the I-Danger application in ToBelt'67 camp at KMITL. This app was designed to reduce the time it takes for victims to receive assistance from rescue teams or hospitals, as just a few minutes can be crucial in such situations. Through this project, I gained valuable insights and improved my coding skills by applying AI principles, such as image detection and machine learning. Additionally, I participated in the AI Innovator Awards 2024 at CMKL University, where my team developed a project called Beatgen, which aimed to connect AI with music by generating new melodies based on various music platform databases. This experience enhanced my skills in web development using HTML, CSS, and JavaScript, as well as website design through Figma. Overall, these projects taught me the importance of teamwork, problem-solving, and the integration of diverse concepts, all of which have inspired me to pursue a career in this field.

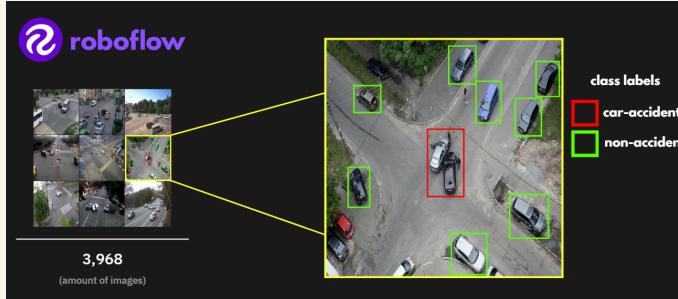
Reflecting back to my childhood, when I questioned my father about the complex and intricate processes of computers, I found my inspiration to pursue self-directed learning in coding. I have never wavered in my determination and consistently strive to develop myself while working on new projects aimed at benefiting society and the world in the future. I feel incredibly fortunate to have my father as my inspiration, along with his innovative ideas regarding this journey. The Computer Engineering program at KMITL is highly relevant for me because I believe this curriculum will significantly enhance my skills in coding and engineering. Additionally, I want to collaborate on research projects with the high-quality faculty at this university, which will provide me with opportunities to learn and grow in a challenging and creative environment. I hope to make a positive impact on society through education and research in this field. Therefore, I have no hesitation in choosing the path I want to take in life, including my desire to create new contributions in collaboration with the university. I plan to seize this opportunity to make a positive impact on the world and my country while pursuing higher education in computer engineering and starting new initiatives for the future.



I-DANGER PROJECT



QR-CODE



I-DANGER at ToBelt'67 Hackathon

I-DANGER is a program capable of detecting road accidents from real-time CCTV footage using detection methods like Roboflow and YOLOv8. When an accident is detected, an alert is sent to the application used primarily by rescue teams, enabling faster emergency response. In the future, if my team and I have the opportunity, we aim to improve accuracy in accident detection, incorporate accident severity levels, add offline alert capabilities, and develop other useful features. I hope that this small beginning can be developed into a tool that can be used practically.

This program was created during the ToBelt'67 Hackathon, hosted by the Faculty of Information Technology at King Mongkut's Institute of Technology Ladkrabang (KMITL), in the second onsite round. To qualify for this round, students first had to complete the online camp, where they received foundational training in areas like Computer Programming, Computer Systems, Machine Learning, and Information Technology Fundamentals. At the end of the online camp, students were tested, with 160 selected from 1,179 participants to advance to the onsite round.



BEATGEN PROJECT

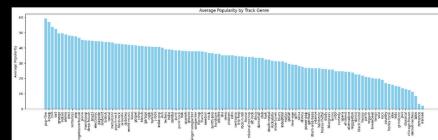
PROBLEM



- In today's digital age, technology has made it incredibly easy for people to access music. With the advent of streaming platforms and smart devices, everyone can listen to their favorite songs anywhere, anytime. This ubiquitous access to music underscores the importance of creating songs that resonate with a wide audience, ensuring that they are catchy and appealing to diverse listeners.

PROCESS

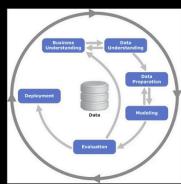
- From the graph using AI processing showing average popularity by genre, it was found that pop music is the most popular, while Iranian music is the least popular.



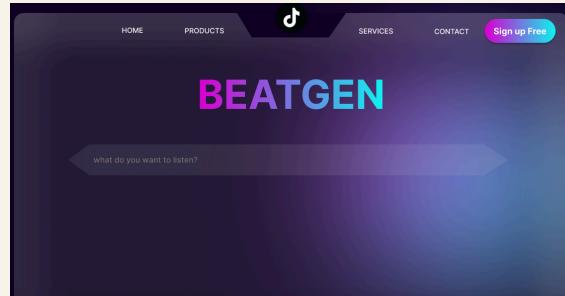
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PROCESS



- After that, you'll proceed to train models using the CRISP-DM methodology to make predictions. The models you might experiment with include:
- K-Nearest Neighbors (KNN): A classification algorithm that assigns a class to a sample based on the majority class among its nearest neighbors.
 - Decision Tree: A model that splits data into subsets based on features to make predictions or classifications.
 - Naive Bayes: A probabilistic classifier based on Bayes' theorem, which assumes independence between features.



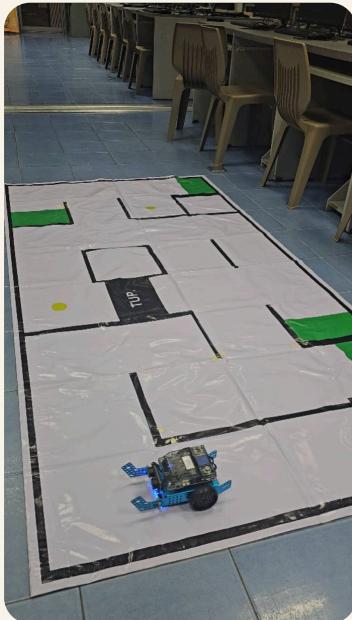
BEATGEN at CMKL University

Beatgen is a program designed to generate music melodies and beats through AI-driven processes. It uses data from applications such as Spotify, which is transformed into graphs to identify the most captivating beats for listeners, allowing Beatgen to produce highly effective and appealing music. This has the potential to introduce new, accessible melodies for audiences of all ages in the future. Additionally, our team plans to develop Beatgen into a fully functional website rather than just a prototype. The program also employs the CRISP-DM methodology to train its models, ensuring optimal stability and outcomes.

This program was developed for the AI Innovator Awards 2024 at CMKL University, which challenges participants to create innovative, AI-driven projects for future industries. Our team is one of the entrants in this competition, dedicating our full effort to bring our project to completion with the highest quality.



NATIONAL ROBOTICS TOURNAMENT



cyberpi.py

```
1 import cyberpi, mbuild, time, event
2 @event.is_press('a')
3 def is_btn_press():
4     while True:
5         if mbuild.quad_rgb_sensor.get_line_sta("all", 1) == 3:
6             cyberpi.display.show_label("Turn Right", 16, "center")
7         elif mbuild.quad_rgb_sensor.get_line_sta("all", 1) == 6:
8             cyberpi.display.show_label("Forward", 16, "center")
9         elif mbuild.quad_rgb_sensor.get_line_sta("all", 1) == 12:
10            cyberpi.display.show_label("Turn Left", 16, "center")
11        elif mbuild.quad_rgb_sensor.get_line_sta("all", 1) == 15:
12            cyberpi.display.show_label("Stop", 16, "center")
13        else:
14            cyberpi.audio.play("buzzing")
15        time.sleep(0.25)
```



National Robotics Tournament

When I was in Grade 11, my friends and I participated in a team robotics competition at the 71st National Academic Skills Competition. Our task was to program a robot to complete specific missions along a designated path, including following the mission route and placing objects at green-marked points on each stage. Our team spent three months preparing, focusing on both programming development and robot design to maximize performance. We used an Mbot2 robot with a CyberPi board and programmed it in Python using Mblock software for autonomous control, and I was mainly responsible for the programming.

In this competition, our team won second runner-up and received a gold medal. This was an achievement I am particularly proud of, as our team dedicated three months to strict practice for this event and achieved the results we had hoped for.

ROBOT COMPETITION



The “Robot Competition” is an event organized by the Technology Promotion Association (Thailand-Japan) where teams compete in a robot soccer game for the royal trophy. My friends and I participated under the team name The TUP Soccerest, and we passed the online selection exam, which consisted of 40 questions covering topics such as C programming, physics principles, robot direction control, and game structure. This competition was my first introduction to the C programming language, providing a valuable new skill that I can apply in future projects.

SSTC SHORT TERM COURSE



The "SSTC Short Term Course" is an English program I attended when I was in Grade 10, where I spent a full month living in Singapore. I focused intently on improving my language skills and stayed with a host family, which allowed me to experience living independently without my family. I communicated entirely in English during this time, which significantly enhanced my language proficiency and provided me with valuable skills for living abroad.



SCHOOL COMPETITIONS



Computer Coding Competition

I won a silver medal in a school coding competition using Python, where I had to write code for three tasks as specified in the prompt. This experience taught me the importance of planning and time management. In the future, I aspire to further enhance my coding skills and compete more effectively.



Physics Competition

I won second runner-up in a high school physics competition while in Grade 11, competing as part of a team of three. My friends and I collaborated to answer physics questions, striving to advance as far as possible among over 20 teams in school. This achievement inspired me to pursue a degree in engineering.



Physics Competition

In the following year, when I was in Grade 12, I competed in the high school physics competition again with my same team from the previous year. We won second runner-up once more. Although this outcome left my friends and me feeling disappointed, but we were still proud of our achievement too. We are determined to continue improving ourselves and pursue our goals in the field of engineering in the future.



HACKERRANK CERTIFICATES



Python Test

I received a certificate for completing three coding challenges in Python on Hackerrank.com. This experience elevated my coding skills and improved my time management abilities. It motivated me to continue developing myself in the future and seek knowledge through higher education.



CSS Test

In Grade 12, I started learning web development using HTML and CSS, which greatly increased my interest in coding. I took the opportunity to complete a CSS challenge on Hackerrank.com to evaluate my skills. I felt very proud of myself in my results, as it showed me that my efforts were not in vain.



JavaScript Test

In Grade 12, I began exploring another programming language, JavaScript, which I found quite challenging. The Functions took me a considerable amount of time to learn, and I didn't use it frequently. However, I decided to challenge myself by taking a basic JavaScript exam on Hackerrank.com and I felt very proud when passing it. This experience marked another step in my journey of trying new things in coding, and I hope it will be beneficial for my future.