

# AMIEL CHRISTIAN ESTRADA MALA-AY

Manila, Philippines

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## EDUCATION

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### University of Santo Tomas

Manila, Philippines

*BS Computer Science, specializing in Core Computer Science*

*August 2021 – June 2025*

- Latin Honors — *Cum Laude*
- Dean's Lister, All Semesters
- GWA: 1.468 / 1.00

## SKILLS

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**Software Frameworks:** React, Svelte, Electron, Flask, Django, Laravel, Java EE

**Programming Languages and Environments:** TypeScript, JavaScript, Java, Python, Kotlin, PHP, Node.js, Rust, Visual Basic .NET, SQL

**Databases:** MySQL, PostgreSQL, SQLite, Redis **Development Tools and Platforms:** Git, GitHub, Visual Studio Code, Xcode, Android Studio, Docker, Google Colaboratory, Kaggle

**AI/ML and Data Science Frameworks:** TensorFlow, Keras, SpaCy, NLTK, Transformers, NumPy, Pandas, Seaborn, Matplotlib, scikit-learn

**Cloud Platforms:** Google Cloud Platform, DigitalOcean, Firebase, Netlify, Vercel, Supabase

**Languages:** Filipino (native), English (native)

## EXPERIENCE

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### Shoppable Business

Manila, Philippines

*Software Developer Intern*

*February 2025 – May 2025*

- Developed plugins and wrote documentation for Stackpress, a suite of open-source projects supported by the organization for future use in production applications.
- Managed task allocation and aided in environment setup and debugging for the other developer interns.
- Developed a test application using an in-house event-driven serverless framework and deployed it to Netlify.
- Kickstarted the development of a compiler for an in-house server-first template engine that generates native web components, using Rust.
- Developed UI components for code editing and display for an in-house UI library built with React.

### The Varsitarian

Manila, Philippines

*Software Developer*

*February 2025 – April 2025*

- Rebuilt the scoreboard software from the ground up for the 45th edition of the publication's Pautakan 2025 competition using Electron, TypeScript, React, and Tailwind.
- Partnered with the event committee to develop a new design for the scoreboard and iterate over the shortcomings of the scoreboard used in the competition's previous edition.
- Assisted in the live presentation of the scoreboard during the competition, which garnered 78,000 livestream viewers.

### 8-Bit

Manila, Philippines

*Full-Stack Developer*

*August 2023 – December 2024*

- Spearheaded the backend development for the UST College of Information and Computing Sciences' faculty attendance monitoring system (CICS-FAMS), built with Django, PostgreSQL, and Redis.
- Participated in regular meetings and demonstrations to the client, documented and analyzed user feedback during reviews, and spearheaded the delivery of continuous improvements to the system, in line with Agile software development practices.
- Took responsibility for the deployment of the website to an Ubuntu virtual private server and eventual migration to on-premises hardware.
- Designed the database schema and the REST API endpoints for interfacing with the database.
- Implemented Google authentication, automated emailing, and secure attendance logging using encrypted QR codes.
- Performed frontend tweaks and bug fixes.
- Aided in UI design and implementation to cater towards a diverse userbase of student leaders, educators, and school administrators.

## **TomasinoWeb**

*Backend Developer*

**Manila, Philippines**

*August 2023 – June 2025*

- Built Ribbit, a simple microblogging platform utilizing Markdown formatting using Laravel and MySQL, in compliance with the requirements for recruitment into the organization.
- Performed schema redesign, restructured routing patterns, and implemented Recycle Bin functionality for the admin view for Draft143, a website for anonymous posts.
- Implemented Facebook feed integration for the Right Click website for university-level student council elections.
- Conducted fieldwork and data entry for Lamona, a food and drink directory catered to university students.

## **The Varsitarian**

*Software Developer*

**Manila, Philippines**

*February 2024 – April 2024*

- Developed the scoreboard software used in the 44th edition of the publication's Pautakan 2024 competition using the Electron JavaScript framework.
- Collaborated with the event committee and the organization's Creatives department to develop the user interface for the software.
- Assisted the organization with its presentation to its audience, with 186,000 viewers watching the event's livestream.

## **LEADERSHIP & ACTIVITIES**

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### **Undergraduate Thesis**

**Manila, Philippines**

*January 2024 – January 2025*

- Proposed a new approach to diabetic retinopathy diagnosis using T2Distill-GradCAM, a novel framework based on the Vision Transformer (ViT) architecture, leveraging advanced machine learning techniques such as Knowledge Distillation (KD), Class Activation Mapping (CAM), Convolutional Neural Networks (CNN), and Convolutional Autoencoders (CAE).
- Formulated a cross-architecture two-teacher knowledge distillation framework that extracts CAM images from a CNN, passes it to a CAE, and aligns the CAE's feature maps with that of the ViT using spatial alignment.
- Implemented the approach using TensorFlow and Keras, attaining a test accuracy score of 78.74% using the proposed method, surpassing the baseline model's 77.24% accuracy.
- Submitted and strongly accepted for publication and presentation at the 25th International Conference on Computing and Artificial Intelligence in Kyoto, Japan, marked highly innovative by the conference reviewers.
- Won first place in the University of Santo Tomas Core Computer Science Research Colloquium.

### **UST Thomasian Gaming Society**

**Manila, Philippines**

*Evaluations Staff*

*August 2024 – June 2025*

- Founding member of the organization.
- Composed comprehensive reports synthesizing attendee feedback from various organizational events, identifying trends and areas for improvement.
- Analyzed evaluation forms using qualitative and quantitative methods to assess participant satisfaction and engagement levels.
- Provided actionable insights for future event planning by highlighting key themes in participant feedback and including statistical data.

### **UST Computer Science Society**

**Manila, Philippines**

*Academics Committee Staff*

*August 2023 – June 2024*

- Collaborated with other staff members in creating reviewers for junior-year students, enhancing the preparedness of the student body for upcoming academic examinations and fostering an academic-oriented environment within the department.
- Assisted in organizing events, particularly the 2024 Computer Science Research Colloquium, contributing to logistics, scheduling, and participant engagement.

### **Machine Learning Projects**

**Manila, Philippines**

- Designed and implemented BINI, an AI prompt safety classifier for Tagalog-language prompts with a test accuracy of 97.12%, successful at preventing all but 0.44% of adversarial prompts when tested on the LLaMa-70B model, using DistilmBERT, mBERT, and XLM-RoBERTa.
- Fine-tuned pretrained neural network models such as VGGNet16 and MobileNet for detecting brain tumors in MRI images, resulting in a final model with a validation accuracy of 99.01%.
- Studied and implemented various machine learning models, including support vector machines, neural networks, decision trees, KNN, and linear regression models across multiple disciplines of machine learning, particularly computer vision and natural language processing.

- Designed and implemented an interpreter for a toy language called Ror, using a deterministic finite automaton-based tokenizer, lexical analyzer, and syntax analyzer, all hand-crafted using Java.
- Developed CakeYum, an e-commerce website for selling cakes and pastries, using Java EE and MySQL in partial fulfillment of requirements for university frontend and backend courses.
- Designed and developed TomasinoChat, an Android chat application built using Kotlin for a mobile development course.
- Created a food delivery system using PHP and MySQL in partial fulfillment of requirements for a university data management course.
- Developed a Markdown-based wiki and a bidding website using Django as part of the Harvard CS50 Web program.
- Implemented an efficient automated receipt creation and auto-email script for a small business in JavaScript.
- Built a high-performing e-commerce application with a seamless, user-friendly interface for local farmers and coffee shops using Django.

AWARDS AND CERTIFICATIONS

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| Best Thesis   <i>University of Santo Tomas Computer Science Department</i> | April 2025     |
| Introduction to Cybersecurity Essentials   <i>IBM</i>                      | September 2024 |
| Generative AI: Introduction and Applications   <i>IBM</i>                  | August 2024    |
| Introduction to Machine Learning on AWS   <i>Amazon Web Services</i>       | August 2024    |
| JavaScript Algorithms and Data Structures   <i>freeCodeCamp</i>            | July 2023      |
| Responsive Web Design   <i>freeCodeCamp</i>                                | September 2022 |