TUNGJAI MADY

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SUMMARY

I am a recent graduate student from LTU, that worked on game projects with C# based development, including building REST APIs with ASP.NET Core and Entity Framework Core
. Also completed a solo data analysis project using Python and Pandas, with data gathered from API, The process also includes manipulation of data such as cleaning, formatting, exporting, etc.

EDUCATION

HIGH SCHOOL DIPLOMA

Vientiane Pattana International School - Vientiane, Laos

Aug 2007 - Jul 2020

UNIVERSITY

Luleå University of Technology -Skellefteå, Sweden

Computer Game Programming
Aug 2022 - Jul 2025

SKILLS

- ASP.NET Core
- C# / C++
- PostgreSQL
- Next.js
- Tailwind CSS
- Rest API
- React
- GitHub
- Python

PROJECTS

Digital Butler - Multi-Tenant Project Manager

- Built a **collaborative workspace system** that manages **user permissions,** allow task organizations,using **ASP.NET Core** and **PostgreSQL**.
- Implement a **task-ordering algorithm** to support drag-and-drop functionality, making sure that task positions remain in the correct position.
- Designed a high-performance **database schema** using **EF Core**, utilizing composite indexes and **DTOs** to ensure data retrieval and prevent over-fetching.
- Implemented secure authentication using **JWT** and **BCrypt**, to protect data and ensuring only authorized members can modify workspace tasks.
- Bridging the back-end with **Next.js** front-end, to ensure the **API** is supported. Using **Git** to track changes and **Swagger** for **API** testing and document every feature.

Game Physics & Research Fundamentals

- Developed a **3D physic engine** from scratch using **C++** and GLM. Focusing on unconstrained dynamics and impulse-based collision response.
- Implement **GJK** for collision detection, and **EPA** for calculating the depth, and precision.
- Optimized **data structures and algorithm** to ensure high-performance, especially within the collision detection loop.
- Create a rigid body, that support linear and angular motion.
- Integrated **ImGui** and **OpenGL** debug rendering to visualize complex physical data.

Desmodus, LTU Projects

- Collaborated with 5 programmers and 15 graphic students on a 2-month project. Used **Unreal Engine** and **Angel Script**, with **Perforce** for version control.
- **Design** and implement as scalable weapon **framework** that support the various type of weapons through the base class.
- **Optimized** weapon system and visual effects by managing particle count, and particle lifetime. To reduce **memory load** and CPU overhead.
- **Agile Development (Scrum)** framework is being used with 20-person team. Setting weekly meeting, post-it note on our current tasks, and **planning** ahead yielding a great results within a 2 months period.
- https://www.youtube.com/watch?v=l3a2JYX68eg