Tommy **Ernsund**

Software Developer

Contact

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Tommy Ernsund
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Technical Skills

Languages:

Python C/C++ C# Javascript Typescript HTML5 CSS SQL Powershell

Frameworks, etc:

Node.js React.js/Native Vue AWS

Tools:

Git Gradle CMake Unity Visual Studio

Languages

Swedish: Native
English: Fluent
Chinese: Want to learn

Education

Master's degree, Computer Science 2020 -
University of Gothenburg/Chalmers Gothenburg, Sweden
Courses: Game Research, Gameplay Design, Computer Graphics, Game Engine Architecture, Game Development Project, Prototyping in Interaction Design, Requirement Engineering, Agile Development Processes, Embedded Systems

Bachelor of Science - BS, Computer Science 2016 - 2019
Mälardalen University Västerås, Sweden
Thesis: *"Load Balancing of Parallel Tasks using Memory Bandwidth Restrictions"*
Researched memory contention and resource allocation strategies in multi-core systems, particularly focusing on memory bandwidth restrictions and their impact on parallel task synchronization. Conducted experiments to assess the effectiveness of adaptive memory partitioning schemes in reducing execution times. Both the memory partitioning algorithm and benchmarking were implemented in C++, with OpenCV used to provide the workload for benchmarking.
Courses: Programming (in C), Data Structures, Object-Oriented programming (in C# and C++), Functional programming, Databases, Data Communication, Web Applications, Mobile Applications, Computer Graphics, Computer Architecture, Operating Systems, Parallel Systems, Interaction Design, Software Engineering 1 & 2, Discrete Mathematics, Vector Algebra

Professional Experience

Android Developer July, 2021 - August, 2021
Everyone Test Gothenburg, Sweden
- Helped developing a dash cam application using the camera2 API for Android. The application was controlled through an app running on a different device, which communicated through a web backend. The other device controlled when to start recording a trip, save a clip, etc.
- Technologies used includes native Android, AWS, socket.io

Electronic Assembler August, 2014 - August, 2016
Note AB Torsby, Sweden
- Assembled a variety of products, often from start to finish, many demanding a high level of precision and attention to detail
- Responsibilities ranged from soldering tasks requiring IPC-certification, testing, and troubleshooting faulty parts/products

Builder of Air Treatment Units February, 2014 - June, 2014
Voltair System AB Torsby, Sweden
- Assembled air treatment units from start to finish, but also worked with other tasks such as sheet metal work, producing heat exchangers, and more
- Being a certified electrician, my responsibilities also included electrical wiring, configuring, and testing the units

Projects

Development of Game and Game Engine 2022
University of Gothenburg/Chalmers Gothenburg, Sweden
- Developed the classic game Zaxxon with a custom game engine written in C++ based on the Entity Component System architecture.

- Gained practical experience in game development, including how to work with different kinds of game entities to implement the game Zaxxon, including a basic game loop, a GUI, objects like the player, enemies, projectiles, obstacles, and VFX.
- Improved my problem-solving skills as I started without any, or limited, prior knowledge or experience of game engine architectures or using the ECS design pattern. Systems were added, and more commonly improved or expanded with additional features as I saw necessary during the development of the game.

Design and implementation of mobile app/game 2022
University of Gothenburg/Chalmers Gothenburg, Sweden

- Worked in collaboration with Generation Pep on a game to encourage increased movement. Users get to take care of a dog playing by mini-games where they walk to the beat of music, earning them tokens they can use to customize their appearance.
- Written in Typescript using React Native with Expo cross-platform development written in Typescript. Cloud storage of user profiles using Firebase.

Augmented Reality game in Unity 2021
University of Gothenburg/Chalmers Gothenburg, Sweden

- Designed and developed a Jenga-inspired, 2-player AR game where the focus lies on strategic block placement to protect your castle as you take turns firing blocks at the opponent's castle. You win if the opponent's castle falls.
- Leveraged Unity assets for wooden blocks, robust player interaction, and dynamic ground plane anchoring.
- Optimized gameplay by using ray casting, scaling techniques, and occlusion for Android devices supporting the Depth API.

Software Engineering Project Winter 2019
Mälardalen University/Volvo CE Västerås/Eskilstuna, Sweden

- Developed a native Android app for Volvo CE to create and edit paths for their new autonomous machines to follow.
- Features included user authentication, database storage, listing paths with the possibility to filter, create and delete paths, editing paths via a visual interface or through G-Code, reservation of machines, and the ability to reserve machines.
- Continuous communication with an external client, including weekly meetings and presentations, as well as having to implement significant changes as the client's requirements changed.