

# Gianmarco Picarella

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## SKILLS

**Specialty:** Computational geometry (CGAL), Gameplay and AI programming, Code performance optimization

**Programming:** C, C++, Python, C#, SQL, Bash, Web development (TypeScript, NextJS, TailwindCSS)

**Performance and optimization:** SIMD, Multi-threading and processing (Intel TBB), GPGPU (CUDA, OpenCL), Intel VTune

**Software:** Unreal Engine 5, Unity 3D, Visual studio, CMake, Git, Perforce, Jira

**Artificial Intelligence:** CNNs and ViT architectures in Pytorch and Keras, Behaviour trees, Monte Carlo Tree Search (MCTS)

## EXPERIENCE

**Junior Software Engineer**, UBISOFT – Milan, Italy

06/2021 – 07/2022

- Worked on the AAA videogame "[Mario+Rabbids: Sparks of Hope](#)" published on Nintendo Switch
- Developed and polished real-time AI game features from early-alpha to gold
- Developed geometric algorithms for the collision-free movement of multiple agents in real-time
- Profiled and optimized critical algorithms and game systems backing the AI system of the game

**Software Engineer Intern**, MILESTONE – Milan, Italy

01/2021 – 04/2021

- Developed various game prototypes with Unreal Engine 4

**Generalist Software Engineer**, WALE STUDIO – Rome, Italy

01/2019 – 06/2020

- Developed the business website and several in-house solutions for data processing and storage

## EDUCATION

**Utrecht University** – MSc in [Game and Media Technology](#) – GPA: 8.53/10 Cum Laude

02/2023 – 06/2025

**Utrecht University Business School** – Honours Programme "[UUBC](#)" – Top 30 students

01/2025 – 05/2025

**University of Rome "La Sapienza"** – BSc in [Computer Science](#) – GPA: 110/110 Cum Laude

09/2017 – 12/2020

**IT High School "Luigi Trafelli"** – High School Diploma in Computer Science – GPA: 98 out of 100

09/2012 – 07/2017

**Italian Videogame Academy** – Course in [Videogame programming](#) – Pass

09/2016 – 04/2017

## PUBLICATIONS

Gianmarco Picarella, Marc van Kreveld, Frank Staals, Sjoerd de Vries.

**Computing Largest Subsets of Points Whose Convex Hulls have Bounded Area and Diameter**

[Link to Publication](#)

- Published in 33rd Annual European Symposium on Algorithms (ESA 2025) on October 1st 2025

## PROJECTS

**Finding dense and well-shaped convex clusters in 2-dimensional point sets**

[Github Repository \(thesis included\)](#)

- Master's Thesis in Computational Geometry at Utrecht University. A paper condensing these results has been accepted for inclusion in the ESA 2025 conference

**AAA Videogame "Mario+Rabbids: Sparks of Hope"**

[IMDB Credits](#)

- Nintendo Switch videogame developed by Ubisoft and published in October 2022 by Nintendo

**35K agents simulated in real-time using Unreal Engine 5**

[Github Repository](#)

- Crowd simulation techniques in C++ for efficient planning, avoidance, rendering and nearest neighbours lookup

**Code optimization and vectorization techniques for C++ applications**

[Github Repository](#)

- Vectorization, GPU parallelization, cache optimization and more in C++ code

**3D lower envelope algorithms: C++ implementation, parallelization and benchmarking**

[Github Repository](#)

- Efficient CGAL-based C++ algorithms for 3D lower envelope computations

**Semi-Lagrangian 2D stable solver for fluid simulation in C++**

[Github Repository](#)

- Real-time C++ simulation of fluid behaviours using a fixed-size 2D grid and Semi-Lagrangian techniques