Quoc-Minh Ton-That

🔗 www.q-minh.com   ✉ tonthat.quocminh@gmail.com   📞 514 836-2725   📍 Montreal, Canada   ⌂ Q-Minh

Experience

Research Scientist   *June 2021 - March 2022*
Symgery Inc.

- Engineered an Unreal Engine plugin for real-time surgical simulation including cutting.
- Improved soft body simulation stability in cut regions via a novel hybrid FEM-SPH coupling method.

R&D Software Developer   *May 2020 - Aug 2020*
Symgery Inc.

- Enhanced visual fidelity of topologically changing geometry by extending a real-time GPU accelerated isosurface extraction algorithm.
- Enabled graphical customization of essential boundary conditions for reduced order FEM models in the Unreal Engine editor.

R&D Software Developer   *Apr 2019 - Aug 2019*
PreVu3D

- Orchestrated an end-to-end automated surface reconstruction pipeline to transform laser scanned point clouds to full-fledged refined 3D polygon meshes without manual intervention.
- Designed a large scale data storage mechanism in the cloud for efficient out-of-core point cloud streaming.

Cloud Software Developer   *Sep 2018 - Apr 2019*
Genetec

- Developed a proof of concept cutting-edge microservices system for the migration of legacy cloud software components.
- Upgraded legacy cloud system monitoring tools, reducing on-call alerts by 20 %.

Publications

Generalized eXtended Finite Element Method for Deformable Cutting via Boolean Operations   Aug 2024

Quoc-Minh Ton-That, Paul G. Kry, Sheldon Andrews

https://doi.org/10.1111/cgf.15184 ↗

Parallel Block Neo-Hookean XPBD using Graph Clustering   Nov 2022

Quoc-Minh Ton-That, Paul G. Kry, Sheldon Andrews

https://doi.org/10.1016/j.cag.2022.10.009 ↗

Talks

Generalized eXtended Finite Element Method for Deformable Cutting via Boolean Operations   Aug 2024

The 23rd ACM SIGGRAPH / Eurographics Symposium on Computer Animation (SCA 2024) at McGill University, Montreal. Best Paper award

Parallel Block Neo-Hookean XPBD using Graph Clustering   Nov 2022

The 15th annual ACM/SIGGRAPH conference on Motion, Interaction and Games (MIG 2022) at Universidad de Guanajuato, Mexico. Best Paper honourable mention

Awards

FRQNT Doctoral Scholarship *Fonds de recherche du Québec — 100 000 CAD*	2024-2028
NSERC Canada Graduate Scholarship - Master's program *Natural Sciences and Engineering Research Council of Canada — 17 500 CAD*	2023-2024
FRQNT Master's Scholarship *Fonds de recherche du Québec — 17 500 CAD*	2023-2024
Mitacs Accelerate Fellowship *Mitacs — 30 000 CAD*	2021-2022
Academic Excellence Scholarship *École de Technologie Supérieure — 40 000 CAD*	2021-2023
Undergraduate Honour List *École de Technologie Supérieure*	2021
Academic Excellence Scholarship *TD Insurance Meloche Monnex — 2 000 CAD*	2018

Teaching

MTI855 Game Physics *Graduate course instructor.*	May 2023 - Aug 2023

Referee Service

ACM Transactions on Graphics (TOG)	2023
Computer Graphics Forum (CGF)	2024

Projects

Physics Based Animation Toolkit *github* ↗

- Cross-platform C++ library of algorithms and data structures commonly used in computer graphics research on physically-based simulation with Python bindings.

Skills

Languages: C++, Python

Technologies: CMake, Git, CUDA

Methods: Matrix computations, Optimization, Numerical partial differential equations (PDEs), Parallel computing, Graph algorithms, Machine learning

Hobbies

Football

Weightlifting

Manga/Anime

Animals

Music