Qimin Chen

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Research Interest

2D & 3D Generative Modeling, Geometric Modeling, Computer Graphics, Shape Synthesis and Analysis, 3D Computer Vision, Machine Learning, Deep Learning

Education

2021 - 2026 **Ph.D. in Computing Science, Simon Fraser University**

Graphics and Vision Lab (GrUVi), advised by Professor Hao (Richard) Zhang.
Thesis: Controllable 3D Shape Detailization (expected to graduate 03/2026)

2018 - 2020 **M.Sc. in Computational Science, University of California, San Diego**

Center for Visual Computing Lab, advised by Professor David J. Kriegman.

2014 - 2018 **B.Sc. in Computer Science and Technology, Fuzhou University**

Graduated with Honors thesis award.

Professional Experience

2024 **Research Scientist Intern, Adobe**

Conducted research on 3D generative modeling with Zhiqin Chen and Vova Kim, focusing on diffusion and multi-view models for controllable feedforward generative models. Authored and published "ART-DECO" at SIGGRAPH Asia 2025, and "GenVDM" at CVPR 2025.

2023 **Research Scientist Intern, Adobe**

Conducted research on 3D generative modeling with Siddhartha Chaudhuri and Vova Kim, leveraging machine learning to expand the capabilities of AI-assisted 3D content creation. Authored and published "DECOLLAGE" at ECCV 2024.

2021 - 2026 **Teaching Assistant, Simon Fraser University**

Designed materials, held office hours, and organized grading for Computing Science graduate-level courses on AI topics, including:

- CMPT 410/726: Machine Learning (Fall 2025)
- CMPT 479/745: Software Engineering (Summer 2025)
- CMPT 420/728: Deep Learning (Spring 2025, Spring 2026)
- CMPT 762: Computer Vision (Spring 2022)
- CMPT 464/764: Geometric Modeling in Computer Graphics (Fall 2021)

2018 - 2020 **Research Assistant, University of California, San Diego**

Developed a deep neural network for manual, semi-automatic, and automatic analysis of coral reef images. Authored and published "A New Deep Learning Engine for CoralNet" at ICCV 2021 Workshop on Computer Vision in the Ocean. The proposed method is currently deployed as the core neural engine that powers the official UCSD CoralNet website.

Conducted fundamental research on topology-aware 3D shape reconstruction using deep learning. Authored and published "Topology-Aware Single-Image 3D Shape Reconstruction" at CVPR 2020 Workshop on Learning 3D Generative Models.

Publications

2025 Qimin Chen, Yuezhi Yang, Yifan Wang, Vladimir Kim, Siddhartha Chaudhuri, Hao Zhang, Zhiqin Chen. **ART-DECO: Arbitrary Text Guidance for 3D Detailizer Construction**.

We design a 3D detailizer that instantly transforms coarse 3D shape proxies into high-quality, textured 3D assets guided by text prompts. SIGGRAPH Asia 2025. (link)

2025 Yuezhi Yang, Qimin Chen, Vladimir Kim, Siddhartha Chaudhuri, Qixing Huang, Zhiqin Chen. **GenVDM: Generating Vector Displacement Maps From a Single Image**.

We introduce the first method for generating Vector Displacement Maps (VDMs): parameterized, detailed geometric stamps commonly used in 3D modeling. CVPR 2025 Highlight (13.5%). (link)

2024 Qimin Chen, Zhiqin Chen, Vladimir Kim, Noam Aigerman, Hao Zhang, Siddhartha Chaudhuri. **DECOLLAGE: 3D Detailization by Controllable, Localized, and Learned Geometry Enhancement**.

We develop a learning-based generative model that enables novice users to enrich coarse 3D shapes with detailed geometry from multiple stylistic exemplar shapes. ECCV 2024. (link)

2024 Zhiqin Chen, Qimin Chen, Hang Zhou, Hao Zhang. **DAE-Net: Deforming Auto-Encoder for Fine-grained Shape Co-segmentation**.

We present an unsupervised 3D shape co-segmentation method that learns deformable part templates from a shape collection to produce fine-grained segmentation. SIGGRAPH 2024. (link)

2023 Qimin Chen, Zhiqin Chen, Hang Zhou, Hao Zhang. **ShaDDR: Interactive Example-Based Geometry and Texture Generation via 3D Shape Detailization and Differentiable Rendering**.

We design the first example-based deep generative neural network for generating a high-resolution textured 3D shape through geometry and texture detailization. SIGGRAPH Asia 2023. (link)

2023   Fenggen Yu, <u>Qimin Chen</u>, Maham Tanveer, Ali Mahdavi-Amiri, Hao Zhang. **D^{2}CSG: Unsupervised Learning of Compact CSG Trees with Dual Complements and Dropouts**.

We introduce a neural model for unsupervised learning of compact constructive solid geometry (CSG) representations of 3D CAD shapes. NeurIPS 2023. (link)

2022   <u>Qimin Chen</u>, Johannes Merz, Aditya Sanghi, Hooman Shayani, Ali Mahdavi-Amiri, Hao Zhang. **UNIST: Unpaired Neural Implicit Shape Translation Network**.

We design the first deep neural implicit model for general-purpose, unpaired shape-to-shape translation, in both 2D and 3D domains. CVPR 2022. (link)

2021   <u>Qimin Chen</u>, Oscar Beijbom, Stephen Chan, Jessica Bouwmeester, David Kriegman. **A New Deep Learning Engine for CoralNet**.

We introduce a new neural network engine for CoralNet, a platform for manual, semi-automatic and automatic analysis of coral reef images. ICCV 2021 Workshop. (link, CoralNet)

2020   <u>Qimin Chen</u>, Vincent Nguyen, Feng Han, Raimondas Kiveris, Zhuowen Tu. **Topology-Aware Single-Image 3D Shape Reconstruction**.

We develop a volumetric-based generative model with topology-awareness auto-encoder to learn high-level topological properties for 3D shape reconstruction. CVPR 2020 Workshop. (link)

Open sources

2019-   **CoralNet** - https://coralnet.ucsd.edu/

CoralNet is a web-based platform for the analysis of coral reef imagery. It lets users upload, organize, and annotate underwater benthic images, supporting both manual and automated annotation workflows. CoralNet uses deep learning models to accelerate image annotation.

Invited talks

2024   DAE-Net: Deforming Auto-Encoder for Fine-grained Shape Co-segmentation. Invited talk at C3DV: 2nd Workshop on Compositional 3D Vision, CVPR 2024, Seattle, Washington.

Conference & Workshop presentations

2025   ART-DECO: Arbitrary Text Guidance for 3D Detailizer Construction. SIGGRAPH Asia 2025. Hong Kong.

2025   ART-DECO: Arbitrary Text Guidance for 3D Detailizer Construction. Simon Fraser University. Vancouver, Canada.

2024	DECOLLAGE: 3D Detailization by Controllable, Localized, and Learned Geometry Enhancement. ECCV 2024. Milan, Italy.
2023	ShaDDR: Interactive Example-Based Geometry and Texture Generation via 3D Shape Detailization and Differentiable Rendering. SIGGRAPH Asia 2023. Sydney, Australia.
2022	UNIST: Unpaired Neural Implicit Shape Translation Network. CVPR 2022. Remote.
2021	A New Deep Learning Engine for CoralNet. ICCV 2021 Workshop on Computer Vision in the Ocean. Remote.
2020	Topology-Aware Single-Image 3D Shape Reconstruction. CVPR 2020 Workshop on Learning 3D Generative Models. Remote.

Awards

2025	Simon Fraser University Computing Science Travel Award. (750 CAD)
2025	ICCV 2025 Outstanding reviewer. (321/11859, top 2.71%)
2025	CVPR 2025 Outstanding reviewer. (711/12593, top 5.65%)
2025	"GenVDM: Generating Vector Displacement Maps From a Single Image". CVPR 2025 Highlight (top 13.5 %)
2023,24	Simon Fraser University Ph.D. Research Scholarship. (1,800 CAD)
2021,22,23,24	Simon Fraser University Graduate Fellowship. (8,000 CAD)
2022	Simon Fraser University Inaugural Outstanding Teaching Assistant Award.

Services

2025	Reviewer: ACM Transactions on Graphics (TOG)
2025	Reviewer: IEEE Transactions on Visualization and Computer Graphics (TVCG)
2025	Reviewer: ACM SIGGRAPH
2023,24,25	Reviewer: ACM SIGGRAPH Asia
2024,25,26	Reviewer: The IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)
2025	Reviewer: International Conference on Computer Vision (ICCV)
2024	Reviewer: European Conference on Computer Vision (ECCV)
2026	Reviewer: International Conference on 3D Vision (3DV)
2025	Reviewer: Conference of the European Association for Computer Graphics (Eurographics)
2025	Program Committee: The Association for the Advancement of Artificial Intelligence (AAAI)