

# Mikaela Angelina Uy

Gates Computer Science, Rm 239  
Stanford, CA 93405

Email: mikacuy@stanford.edu  
<https://mikacuy.github.io>

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Education	<b>Stanford University</b> Ph.D. Candidate in Computer Science Advisor: Prof. Leonidas Guibas	<b>CA, USA</b> Sept 2019 – present
	<b>National University of Singapore</b> Master of Computing (Computer Science); CAP: 4.58/5.0 Scholarship: NUS Graduate Scholarship for ASEAN Nationals (full masters scholarship)	<b>Singapore</b> 2017 – 2018
	<b>Hong Kong University of Science and Technology</b> BSc. in Mathematics and Computer Science CGA: 3.84/4.3; CS CGA: 4.16/4.3; First Class Honors Scholarship: HKSAR Government Targeted Scholarship (full 4-year university scholarship)	<b>Hong Kong</b> 2013 – 2017
Selected Publications	NeRF Revisited: Fixing Quadrature Instability in Volume Rendering <u>Mikaela Angelina Uy</u> , Guandao Yang, Kiyohiro Nakayama, Leonidas Guibas, Ke Li (In submission)	
	DiffFacto: Controllable Part-Based 3D Point Cloud Generation with Cross Diffusion Kiyohiro Nakayama, <u>Mikaela Angelina Uy</u> , Jiahui Huang, Shi-Min Hu, Ke Li, Leonidas Guibas (In submission) Website: <a href="https://difffacto.github.io">https://difffacto.github.io</a>	
	OptCtrlPoints: Optimizing Control Points for Biharmonic 3D Shape Deformation Kunho Kim*, <u>Mikaela Angelina Uy</u> *, Despoina Paschalidou, Alec Jacobson, Leonidas Guibas, Minhyuk Sung (In submission)	
	SCADE: NeRFs from Space Carving with Ambiguity-Aware Depth Estimates <u>Mikaela Angelina Uy</u> , Ricardo Martin-Brualla, Leonidas Guibas, Ke Li Computer Vision and Pattern Recognition (CVPR), 2023. Website: <a href="https://scade-spacecarving-nerfs.github.io">https://scade-spacecarving-nerfs.github.io</a>	
	PartNeRF: Generating Part-Aware Editable 3D Shapes without 3D Supervision Konstantinos Tertikas, Despoina Paschalidou, Boxiao Pan, Jeong Joon Park, <u>Mikaela Angelina Uy</u> , Ioannis Emiris, Yannis Avrithis, Leonidas Guibas Computer Vision and Pattern Recognition (CVPR), 2023.	
	Point2Cyl: Reverse Engineering 3D Objects from Point Clouds to Extrusion Cylinders <u>Mikaela Angelina Uy</u> *, Yen-yu Chang*, Minhyuk Sung, Purvi Goel, Joseph Lambourne, Tolga Birdal, Leonidas Guibas Computer Vision and Pattern Recognition (CVPR), 2022. Website: <a href="https://point2cyl.github.io">https://point2cyl.github.io</a>	
	Joint Learning of 3D Shape Retrieval and Deformation <u>Mikaela Angelina Uy</u> , Vladimir G. Kim, Minhyuk Sung, Noam Aigerman, Siddhartha Chaudhuri, Leonidas Guibas Computer Vision and Pattern Recognition (CVPR), 2021. Website: <a href="https://joint-retrieval-deformation.github.io">https://joint-retrieval-deformation.github.io</a>	
	Deformation-Aware 3D Shape Embedding and Retrieval <u>Mikaela Angelina Uy</u> , Jingwei Huang, Minhyuk Sung, Tolga Birdal, Leonidas Guibas	

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European Conference on Computer Vision (ECCV), 2020.

Website: <https://deformscan2cad.github.io>

LCD: Learned Cross-Domain Descriptors for 2D-3D Matching

Quang-Hieu Pham, **Mikaela Angelina Uy**, Binh-Son Hua, Duc Thanh Nguyen, Sai-Kit Yeung

AAAI Conference on Artificial Intelligence (AAAI), 2020. **Oral**

Website: <https://hkust-vgd.github.io/lcd/>

Revisiting Point Cloud Classification: A New Benchmark Dataset and Classification Model on Real-World Data

**Mikaela Angelina Uy**, Quang-Hieu Pham, Binh-Son Hua, Duc Thanh Nguyen, Sai-Kit Yeung

International Conference of Computer Vision (ICCV), 2019. **Oral**

Website: <https://hkust-vgd.github.io/scanobjectnn/>

## Work Experiences

### Google

Seattle, USA

Research Intern

Jun 2023-present

- Mentors: Ke Li, Xuan Luo

### Google

Mountain View, USA

Research Intern

Jun 2022-Jan 2023

- Sparse, unconstrained NeRF reconstruction with ambiguity-aware depth estimates
- Mentors: Ke Li, Mirko Visontai

### Autodesk AI Lab

San Francisco, USA (Remote)

Research Intern

Jun 2021-Sept 2021

- Learning and understanding of 3D CAD and solid models
- Mentors: Joseph Lambourne

### Adobe Research

Seattle, USA (Remote)

Research Intern

Jun 2020-Sept 2020

- 3D shape deformation techniques and parametric model understanding
- Mentors: Vladimir G. Kim, Minhyuk Sung, Noam Aigerman, Siddhartha Chaudhuri

### Hong Kong University of Science and Technology

Hong Kong

Research Assistant

Sept 2018-Jun 2019

- 3D scene understanding and point cloud learning using deep learning techniques
- Supervisor: Prof. Sai-Kit Yeung

## Invited Talks

### SFU Visual Computing and Robotics (VCR) Seminar

June 26, 2023

*Towards Controllable 3D Content Creation by Leveraging Geometric Priors*

### Structural and Compositional Learning on 3D Data CVPR Workshop

June 18, 2023

*Towards Controllable 3D Content Creation by Leveraging Geometric Priors*

### KAIST

January 9, 2023

*SCADE: NeRFs from Space Carving with Ambiguity-Aware Depth Estimates*

### VinAI Seminar Series

July 22, 2022

*Learning to Vary 3D Models for Universally Accessible 3D Content Creation*

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	<b>Brown Vision Computing Seminar</b> <i>Learning to Vary 3D Models for Universally Accessible 3D Content Creation</i>	April 11, 2022
	<b>Stanford G-Cafe</b> <i>Point2Cyl: Reverse Engineering 3D Objects from Point Clouds to Extrusion Cylinders</i>	March 10, 2022
<b>Teaching Experiences</b>	<b>Stanford CS 348n Guest Lecture</b> <i>Neural Shape Variation and Generation</i>	February 16, 2022
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	<b>Stanford CS 348n Guest Lecture</b> <i>Neural Shape Variation and Generation</i>	February 16, 2022
	<b>Computer Graphics: Geometric Modeling/Processing (CS 348a)</b> <i>Teaching Assistant, Stanford</i>	Winter 2021
	<ul style="list-style-type: none"><li>Taught recitation class once a week, held office hours twice a week, and graded all exams, homeworks and projects in the class.</li></ul>	
	<b>Introduction to Computer Science (COMP 1021)</b> <i>Lab Assistant, HKUST</i>	<b>Hong Kong</b> Sept–Dec 2014
	<ul style="list-style-type: none"><li>Taught in lab sessions of the introductory class in Python.</li></ul>	
<b>Selected Awards</b>	<b>Apple AI/ML PhD Research Fellowship</b>	2023
	<b>Snap Research Fellowship</b>	2022
	<b>Meta PhD Fellowship Finalist</b>	2023
	<b>School of Engineering Fellowship, Stanford University</b>	2019-2020
	<b>HKSAR Government Targeted Scholarship</b>	2013-2017
	<b>NUS Graduate Scholarship for ASEAN Nationals</b>	2017-2018
	<b>Epsilon Fund Award, HKUST Mathematics Department</b>	2017
	<b>Google Women Techmakers Scholarship; Asia Pacific</b>	2016
	<b>International Mathematical Olympiad (IMO) Bronze Medalist</b>	2012, 2013
	<b>Philippine Mathematical Olympiad 1<sup>st</sup> runner-up</b>	2012, 2013
<b>Services</b>	<b>Reviewer:</b> CVPR, ICCV, ECCV, SIGGRAPH, SIGGRAPH Asia, BMVC, 3DV, AAAI, TVCG, Eurographics, Neurips	
	<b>Volunteer Competitive Math Trainor</b> Trained the PH IMO Team '17-'20; PH team leader for various elementary Math Olympiads	
<b>Projects</b>	<b>Interpretable &amp; Actionable Models using Attribute &amp; Uncertainty Information</b>	Autumn 2019
	<ul style="list-style-type: none"><li>CS229 (Machine Learning) course project</li><li>Deep-learning models can be difficult to understand and control intuitively due to the black-box nature of these models. However, such lack of interpretability and human actionability in the models' decision processes make it difficult to trust these models in critical applications. We propose to alleviate these problems using attribute and uncertainty modeling.</li></ul>	
	<b>Bachelor's Thesis (Underwater Robotics Vision)</b>	2016 – 2017

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- Advised by Prof. Chi-Keung Tang
- Studied the performance of real-time object detection models, both using handcrafted features and deep learning networks, for underwater diver detection in robotics applications.

## HKUST Robotics Team, Remotely Operated Vehicle (ROV) Sub team

*Software Engineer*

2014 – 2015

- **Overall 3rd Place** (Explorer Class) – 14th Annual MATE International Underwater Robotics Competition in *St John's, Newfoundland and Labrador, Canada*
- **Asia Champion** in 2015 MATE Asia Regional Underwater Robotics Competition
- Built the main control software of the ROV and Qt GUI's for the competition runs.
- The team was composed of 15 engineers who built and designed the ROV from scratch.

**Technical Skills** Python, C/C++, Unix, Tensorflow, Pytorch, MATLAB, OpenCV, ROS, microcontroller programming

**Languages** **Native:** English, Filipino, Hokkien; **Proficient:** Mandarin