Yun-Chun Chen

Email: ycchen@cs.toronto.edu
Web: yunchunchen.github.io

Education

Sep 2020 – Present **University of Toronto, ON, Canada.**
Ph.D. Candidate in Computer Science.
Advisor: Alec Jacobson.
Committee: Alec Jacobson, Sanja Fidler, Sven Dickinson.

Sep 2014 – Jun 2018 **National Taiwan University, Taipei, Taiwan.**
B.S. in Electrical Engineering.

Work Experience

Sep 2020 – Present **University of Toronto, ON, Canada.**
Graduate Research Assistant. Advisor: Alec Jacobson.
- Working on 3D vision, graphics, geometry and generative AI applications.
- Worked on collecting and benchmarking a large-scale cloth dataset.
- Worked on collecting and benchmarking a large-scale fractured object dataset.
- Worked on pairwise 3D geometric shape assembly.

Jun 2023 – Sep 2023 **Adobe Research, Seattle, WA, USA.**
Research Scientist Intern. Mentors: Matheus Gadelha, Vova Kim, Zhiqin Chen.
- Worked on 3D generation and editing with diffusion models and differentiable rendering.

Jun 2022 – Jan 2023 **Adobe Research, Toronto, ON, Canada.**
Research Scientist Intern. Mentors: Vova Kim, Noam Aigerman.
- Worked on progressive representations for mesh compression and transmission.

May 2021 – Feb 2022 **NVIDIA Seattle Robotics Lab, WA, USA.**
Remote Research Intern. Manager: Dieter Fox. Mentors: Adithya Murali, Balakumar Sundaralingam.
- Worked on implicit neural representations for robotic grasping and motion planning.

Jan 2020 – Jun 2020 **University of California, Merced, CA, USA.**
Short-term Visiting Scholar. Mentor: Ming-Hsuan Yang.
- Worked on 3D human pose and shape estimation from videos.

Apr 2019 – Jul 2019 **Virginia Tech, VA, USA.**
Short-term Visiting Scholar. Mentor: Jia-Bin Huang.
- Worked on neural architecture search for image restoration and synthesis.

Jul 2017 – Jan 2019 **Academia Sinica, Taipei, Taiwan.**
Research Assistant. Mentors: Yen-Yu Lin, Jia-Bin Huang, Ming-Hsuan Yang.
- Worked on unsupervised domain adaptation for dense prediction tasks.
- Worked on weakly supervised semantic matching and object co-segmentation.

Selected Publications

Journal Papers

CVIU 2021 **Self-Attentive 3D Human Pose and Shape Estimation from Videos.**
Yun-Chun Chen, Marco Piccirilli, Robinson Piramuthu, Ming-Hsuan Yang.
Computer Vision and Image Understanding (CVIU), 2021.

TPAMI 2021 **Show, Match and Segment: Joint Weakly Supervised Learning of Semantic Matching and Object Co-segmentation.**
Yun-Chun Chen, Yen-Yu Lin, Ming-Hsuan Yang, Jia-Bin Huang.
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021.

Conference Papers

SIGGRAPH 2023 **Neural Progressive Meshes.**
Yun-Chun Chen, Vladimir G. Kim, Noam Aigerman, Alec Jacobson.
ACM SIGGRAPH, 2023.

NeurIPS 2022 **Breaking Bad: A Dataset for Geometric Fracture and Reassembly.**
Silvia Sellán*, **Yun-Chun Chen***, Ziyi Wu*, Animesh Garg, Alec Jacobson.
Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track, 2022.
Featured Paper Presentation

ECCV 2022 **Grasp'D: Differentiable Contact-rich Grasp Synthesis for Multi-fingered Hands.**
Dylan Turpin, Liquan Wang, Eric Heiden, **Yun-Chun Chen**, Miles Macklin, Stavros Tsogkas,
Sven Dickinson, Animesh Garg.
European Conference on Computer Vision (ECCV), 2022.
Oral Presentation

CVPR 2022 **Neural Shape Mating: Self-Supervised Object Assembly with Adversarial Shape Priors.**
Yun-Chun Chen, Haoda Li, Dylan Turpin, Alec Jacobson, Animesh Garg.
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

IROS 2021 **Learning by Watching: Physical Imitation of Manipulation Skills from Human Videos.**
Haoyu Xiong, Quanzhou Li, **Yun-Chun Chen**, Homanga Bharadhwaj, Samarth Sinha, Animesh Garg.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021.

ECCV 2020 **NAS-DIP: Learning Deep Image Prior with Neural Architecture Search.**
Yun-Chun Chen*, Chen Gao*, Esther Robb, Jia-Bin Huang.
European Conference on Computer Vision (ECCV), 2020.

ECCV 2020 **Learning to Learn in a Semi-Supervised Fashion.**
Yun-Chun Chen, Chao-Te Chou, Yu-Chiang Frank Wang.
European Conference on Computer Vision (ECCV), 2020.

ICCV 2019 **Recover and Identify: A Generative Dual Model for Cross-Resolution Person Re-Identification.**
Yun-Chun Chen*, Yu-Jhe Li*, Yen-Yu Lin, Xiaofei Du, Yu-Chiang Frank Wang.
IEEE International Conference on Computer Vision (ICCV), 2019.

CVPR 2019 **CrDoCo: Pixel-level Domain Transfer with Cross-Domain Consistency.**
Yun-Chun Chen, Yen-Yu Lin, Ming-Hsuan Yang, Jia-Bin Huang.
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019.

AAAI 2019 **Learning Resolution-Invariant Deep Representations for Person Re-Identification.**
Yun-Chun Chen*, Yu-Jhe Li*, Xiaofei Du, Yu-Chiang Frank Wang.
AAAI Conference on Artificial Intelligence (AAAI), 2019.
Oral Presentation

ACCV 2018 **Deep Semantic Matching with Foreground Detection and Cycle-Consistency.**
Yun-Chun Chen, Po-Hsiang Huang, Li-Yu Yu, Jia-Bin Huang, Ming-Hsuan Yang, Yen-Yu Lin.
Asian Conference on Computer Vision (ACCV), 2018.

Workshop Papers

RSS-W 2022 **Neural Motion Fields: Encoding Grasp Trajectories as Implicit Value Functions.**
Yun-Chun Chen*, Adithyavairavan Murali*, Balakumar Sundaralingam*, Wei Yang,
Animesh Garg, Dieter Fox.
RSS 2022 Workshop on Implicit Representations for Robotic Manipulation, 2022.
Spotlight Talk

RSS-W 2021 **Learning by Watching: Physical Imitation of Manipulation Skills from Human Videos.**
Haoyu Xiong, Quanzhou Li, **Yun-Chun Chen**, Homanga Bharadhwaj, Samarth Sinha, Animesh Garg.
RSS 2021 Workshop on Visual Learning and Reasoning for Robotics, 2021.
Spotlight Talk

ICML-W 2021	**Learning by Watching: Physical Imitation of Manipulation Skills from Human Videos.**
	Haoyu Xiong, Quanzhou Li, **Yun-Chun Chen**, Homanga Bharadhwaj, Samarth Sinha, Animesh Garg.
	ICML 2021 Workshop on Human in the Loop Learning, 2021.

Preprint

arXiv 2020	**Cross-Resolution Adversarial Dual Network for Person Re-Identification and Beyond.**
	Yun-Chun Chen*, Yu-Jhe Li*, Yen-Yu Lin, Yu-Chiang Frank Wang.
	arXiv preprint arXiv:2002.09274

Talks

Aug 2023	**ACM SIGGRAPH.**
	Neural Progressive Meshes.
May 2022	**Toronto Geometry Colloquium.**
	Neural Shape Mating: Self-Supervised Object Assembly with Adversarial Shape Priors.
	Invited by Hsueh-Ti Derek Liu, Otman Benchekroun, Selena Ling, Silvia Sellán, Alec Jacobson.

Patents

2023	**Progressively Generating Fine Polygon Meshes.**
	Vladimir G. Kim, **Yun-Chun Chen**, Noam Aigerman, Alec Jacobson,
	Filed by Adobe.
2022	**Techniques for Robot Control using Neural Implicit Value Functions.**
	Adithyavairavan Murali, Balakumar Sundaralingam, **Yun-Chun Chen**, Dieter Fox, Animesh Garg.
	Filed by NVIDIA.
	US Patent Application No. 17/856,699.

Honors and Awards

2023	Faculty of Arts and Science Program-level Fellowship, University of Toronto.
2023	University of Toronto Fellowship, Faculty of Arts and Science.
2023	University of Toronto Fellowship, Faculty of Arts and Science.
2023	University of Toronto Fellowship, Faculty of Arts and Science.
2022	Ph.D. Conference Travel Grant for NeurIPS 2022.
2022	Faculty of Arts and Science Program-level Fellowship, University of Toronto.
2022	University of Toronto Top Up Fellowship, Faculty of Arts and Science.
2022	Vector Institute Research Grant.
2022	University of Toronto Mississauga Travel Grant for CVPR 2022.
2022	University of Toronto Fellowship, Faculty of Arts and Science.
2021	Faculty of Arts and Science Program-level Fellowship, University of Toronto.
2021	Vector Institute Research Grant.
2021	Top 25% of Program Committee Members of AAAI 2021.
2021	University of Toronto Fellowship, Faculty of Arts and Science.
2020	Faculty of Arts and Science Program-level Fellowship, University of Toronto.
2019	Appier AI Scholarship for ICCV 2019.
2019	Appier AI Scholarship for CVPR 2019.
2019	Appier AI Scholarship for AAAI 2019.
2018	Third Place in IEEE Video and Image Processing (VIP) Cup.

Teaching

University of Toronto

Winter 2024	CSC 420: Introduction to Image Understanding. Instructor: David Lindell.

Winter 2024	CSC 320: Introduction to Visual Computing. Instructor: Kyros Kutulakos.
Fall 2023	CSC 236: Introduction to the Theory of Computation. Instructor: Francois Pitt.
Winter 2023	CSC 420: Introduction to Image Understanding. Instructor: Sanja Fidler.
Winter 2023	CSC 420: Introduction to Image Understanding. Instructor: David Lindell.
Winter 2023	CSC 413/2516: Neural Networks and Deep Learning. Instructors: Jimmy Ba and Bo Wang.
Fall 2022	CSC 317: Computer Graphics. Instructor: Karan Singh.
Fall 2022	CSC 2521: Topics in Computer Graphics. Instructor: Alec Jacobson.
Winter 2022	CSC 375: Algorithmic Intelligence in Robotics. Instructor: Animesh Garg.
Winter 2022	CSC 413/2516: Neural Networks and Deep Learning. Instructors: Jimmy Ba and Bo Wang.
Winter 2021	CSC 413/2516: Neural Networks and Deep Learning. Instructors: Jimmy Ba and Bo Wang.

National Taiwan University

Spring 2018	EE 5184: Machine Learning.
Fall 2017	EE 1004: Computer Programming.

Academic Service

Journal Reviewer

International Journal of Computer Vision (IJCV)

Image and Vision Computing (IVC)

IET Computer Vision

IEEE Robotics and Automation Letters (RA-L)

IEEE Transactions on Image Processing (TIP)

Senior Program Committee

International Joint Conference on Artificial Intelligence (IJCAI), 2021

Conference Reviewer / Program Committee

Neural Information Processing Systems (NeurIPS), 2020, 2021, 2022, 2023

Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track, 2022, 2023

International Conference on Learning Representations (ICLR), 2021, 2022, 2023, 2024

International Conference on Machine Learning (ICML), 2021, 2022, 2023, 2024

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020, 2021, 2022, 2023, 2024

IEEE International Conference on Computer Vision (ICCV), 2019, 2021, 2023

European Conference on Computer Vision (ECCV), 2020, 2022

International Conference on 3D Vision (3DV), 2022

British Machine Vision Conference (BMVC), 2019, 2020, 2021, 2022, 2023

Asian Conference on Computer Vision (ACCV), 2020, 2022

IEEE Winter Conference on Applications of Computer Vision (WACV), 2021, 2022, 2023, 2024

ACM SIGGRAPH Asia, 2022

IEEE International Conference on Robotics and Automation (ICRA), 2021

Conference on Robot Learning (CoRL), 2020

International Symposium on Robotics Research (ISRR), 2022

International Joint Conference on Artificial Intelligence (IJCAI), 2022, 2023

AAAI Conference on Artificial Intelligence (AAAI), 2020, 2021, 2022, 2023, 2024

Conference on Lifelong Learning Agents (CoLLAs), 2023

Learning on Graphs Conference (LoG), 2023

International Conference on Artificial Intelligence and Statistics (AISTATS), 2023, 2024

IEEE International Conference on Image Processing (ICIP), 2019

Gordon Research Conference/Seminar in Robotics (GRS), 2022

Volunteer

International Conference on Learning Representations (ICLR), 2021

International Conference on Machine Learning (ICML), 2021

Mentor

SIGGRAPH Grad School Application Mentorship Program, 2022

Toronto Graduate Application Assistance Program, 2022, 2023

Mentoring

Sep 2022 – Apr 2023 | **Junru Lin**
B.S. student, University of Toronto.

May 2022 – Jul 2022 | **Xinyu Kang**
B.S. student, University of Toronto.

Aug 2021 – May 2022 | **Haoda Li**
B.S. student, University of Toronto.

Jul 2020 – Sep 2021 | **Quanzhou Li**
B.S. student, University of Toronto.

Jul 2020 – Sep 2021 | **Haoyu Xiong**
B.S. student, Tianjin University.

References

Ph.D. Advisor | **Alec Jacobson**
Associate Professor
Department of Computer Science
University of Toronto
Email: jacobson@cs.toronto.edu
Web: https://www.cs.toronto.edu/~jacobson/

Research Mentor | **Vova Kim**
Senior Research Scientist
Adobe Research, Seattle
Email: vokim@adobe.com
Web: http://www.vovakim.com/

Research Mentor | **Ming-Hsuan Yang**
Professor
Department of Electrical Engineering and Computer Science
University of California, Merced
Email: mhyang@ucmerced.edu
Web: https://faculty.ucmerced.edu/mhyang/

Research Mentor | **Jia-Bin Huang**
Capital One endowed Associate Professor
Department of Computer Science
University of Maryland, College Park
Email: jbhuang@umd.edu
Web: https://jbhuang0604.github.io/