Ren Li

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RESEARCH SUMMARY

My academic interests lie at the intersection of 3D vision, computer graphics, and machine learning, focusing on 3D object representations and reconstruction, geometric computing, and physics-based simulation.

In details, I leverage differentiable neural representations and physical constraints in geometry optimization to address challenges in deformable surface modeling. My work has broad applications, including 3D reconstruction, human digitization, robotics, physical scene understanding, and emerging fields such as VR/AR, e-commerce, and fashion.

Education

École polytechnique fédérale de Lausanne (EPFL) — *Lausanne, Switzerland*
Ph.D. candidate in Computer Science — *Sept. 2021 - Jun. 2025*
Advisor: **Prof. Pascal Fua**

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI) — *Abu Dhabi, UAE*
Visiting Ph.D. student in Computer Vision — *Oct. 2024 - Dec. 2024*
Advisor: **Prof. Hao Li**

Purdue University — *West Lafayette, U.S.*
M.Sc. in Electrical and Computer Engineering — *Aug. 2016 - May 2019*
- Overall GPA: 3.94/4.0

University of Science and Technology of China (USTC) — *Hefei, China*
B.Sc. of Electrical Engineering — *Aug. 2012 - Jun. 2016*
- Overall GPA: 4.00/4.3, **Rank: 1/106**
- **Guo Moruo Scholarship (the most highly regarded honor by USTC)**

Publications

Journal Articles

- **Ren Li**, Jared S. Johansen, Hamad Ahmed, Thomas V. Ilyevsky, Ronnie B Wilbur, Hari M Bharadwaj, Jeffrey Mark Siskind, *"The Perils and Pitfalls of Block Design for EEG Classification Experiments"*, **IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)**, 2020.
- Srikrishna Karanam*, **Ren Li***, Fan Yang*, Wei Hu, Terrence Chen, Ziyan Wu, *"Towards Contactless Patient Positioning"*, **IEEE Transactions on Medical Imaging (TMI)**, 2020.

Conference Proceedings

- **Ren Li**, Cong Cao, Corentin Dumery, Yingxuan You, Hao Li, Pascal Fua, *"Single View Garment Reconstruction Using Diffusion Mapping Via Pattern Coordinates"*, **SIGGRAPH**, 2025.
- **Ren Li**, Corentin Dumery, Zhantao Deng, Pascal Fua, *"Reconstruction of Manipulated Garment with Guided Deformation Prior"*, **NeurIPS**, 2024.
- **Ren Li**, Corentin Dumery, Benoît Guillard, Pascal Fua, *"Garment Recovery with Shape and Deformation Priors"*, **CVPR**, 2024.
- **Ren Li**, Benoît Guillard, Pascal Fua, *"ISP: Multi-Layered Garment Draping with Implicit Sewing Patterns"*, **NeurIPS**, 2023.
- Luca De Luigi*, **Ren Li***, Benoît Guillard, Mathieu Salzmann, Pascal Fua, *"DrapeNet: Garment Generation and Self-Supervised Draping"*, **CVPR**, 2023.
- **Ren Li**, Benoît Guillard, Edoardo Remelli, Pascal Fua, *"DIG: Draping Implicit Garment over the Human Body"*, **ACCV** (Oral), 2022.
- **Ren Li**, Meng Zheng, Srikrishna Karanam, Terrence Chen, Ziyan Wu, *"Everybody Is Unique: Towards Unbiased Human Mesh Recovery"*, **BMVC** (Oral), 2021.
- Runze Li, Srikrishna Karanam, **Ren Li**, Terrence Chen, Bir Bhanu, Ziyan Wu, *"Learning Local Recurrent Models for Human Mesh Recovery"*, **3DV**, 2021.

- Georgios Georgakis*, **Ren Li***, Srikrishna Karanam, Terrence Chen, Jana Kosecka, Ziyan Wu, *"Hierarchical Kinematic Human Mesh Recovery"*, **ECCV**, 2020.
- **Ren Li***, Fan Yang*, Srikrishna Karanam, Terrence Chen, Haibin Ling, Ziyan Wu, *"Robust Multi-modal 3D Patient Body Modeling"*, **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)**, 2020.
- Liming Jiang, **Ren Li**, Wayne Wu, Chen Qian, Chen Change Loy, *"DeeperForensics-1.0: A Large-Scale Dataset for Real-World Face Forgery Detection"*, **CVPR**, 2020.
- Yijian Xiang, Lu Fang, **Ren Li**, N. M. Cheung, *"Depth Error Induced Virtual View Synthesis Distortion Estimation for 3D Video Coding"*, **IEEE Data Compression Conference (DCC)**, 2015.

**Equal contribution*.

Workshops

- Corentin Dumery, Aoxiang Fan, **Ren Li**, Nicolas Talabot, Pascal Fua, *"DiscoNeRF: Class-Agnostic Object Field for 3D Object Discovery"*, CVPRW, 2025.

Preprints

- Corentin Dumery, Noa Etté, Jingyi Xu, Aoxiang Fan, **Ren Li**, Hieu Le, Pascal Fua, *"Counting Stacked Objects from Multi-View Images"*, Arxiv, 2024.

Patents

- "Automating a medical environment", US Patent, 2023.

Work Experience

EPFL *Lausanne, Switzerland*

Research Assistant *Sept. 2021 - Current*

- *3D Cloth Modeling*: Representing, draping and recovering garment with implicit functions.
- Advisor: **Prof. Pascal Fua**

United Imaging Intelligence *Boston, MA, U.S.*

Research Assistant *Sept. 2019 - Mar. 2021*

- *Human Mesh Recovery*: Recovering human pose and shape from RGB-D or RGB input under daily or medical environment for the contactless patient positioning system.
- Advisor: **Dr. Ziyan Wu** and **Dr. Srikrishna Karanam**

SenseTime *Beijing, China*

Research Intern/Part-time Researcher *May 2019 - Feb. 2020*

- *Face Forgery*: Building a large-scale dataset and a GAN-based model for face forgery.

Purdue University *West Lafayette, IN, U.S.*

Research Assistant *Sept. 2016 - May 2019*

- *EEG-Based Visual Classification*.
- *Visual Relationship Detection for Video Retrieval*.

Gottfried Wilhelm Leibniz Universität Hannover *Germany*

Research Assistant *Jan. 2016 - May 2016*

- *Contact-Free Camera Measurements of Heart Rate*.
- Advisor: **Prof. Jörn Ostermann**

USTC *Hefei, China*

Research Assistant *Jun. 2014 - May 2016*

- *Synthesis Distortion Estimation in 3D Video*.
- Advisor: **Prof. Lu Fang**

Awards & Honors

2021	EDIC Fellowship	*EPFL*
2015	**Guo Moruo Scholarship (Top 1%)***	*USTC*
2014	National Scholarship (Top 2%)	*Ministry of Education of China*
2014	The Talent Program Scholarship (Top 3%)	*USTC*
2013	Institute of Electronics Scholarship (1/101)	*Chinese Academy of Sciences (CAS)*

**Guo Moruo Scholarship is the first scholarship of P.R. China, and the most highly regarded honor by USTC students and alumni, in name of our first president Mr. Guo Moruo.*

Academic Service

Reviewer CVPR, NeurIPS, ICCV, ECCV, TVCG, ACCV, Pacific Graphics, Pattern Recognition, IEEE T-BIOM

Teaching Activities

Teaching Assistant	MATH-111: Linear Algebra.	2022, 2023
	CS-442: Computer vision.	2022
	CS-233: Introduction to machine learning.	2023, 2024
Student Supervision	Yingxuan You, PhD student	
	Luca De Luigi, PhD student	
	Ali Raed Ben Mustapha, MSc student	
	Zhaobo Wang, MSc student	
	Xingchen Li, MSc student	