

# Jaskirat Singh | Academic CV

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🌐 [1jsingh.github.io](https://1jsingh.github.io) • 📺 Jaskirat Singh

## Research Interests

Controllable Image Synthesis and Editing, Creative Content Generation, Reinforcement Learning

## Education

- **The Australian National University** **Expected**  
*Ph.D. in Computer Science*  
Supervisors: [Prof. Liang Zheng](#) and [Prof. Stephen Gould](#) *Sep' 21–Present*
- **The Australian National University** **GPA: 7/7**  
*Master of Machine Learning and Computer Vision*  
🎓 Awarded University Medal for Exceptional Academic Excellence *Jul' 19–Jul' 21*
- **Indian Institute of Technology, Delhi** **GPA: 9.3/10**  
*Bachelor of Technology (B.Tech), Electrical Engineering*  
Specialization in Intelligent and Cognitive systems *2013–2017*

## Publications

1. [SmartMask: Context Aware High-Fidelity Mask Generation for Fine-grained Object Insertion and Layout Control](#)  
[Jaskirat Singh](#), [Jianming Zhang](#), [Qing Liu](#), [Cameron Smith](#), [Zhe Lin](#), [Liang Zheng](#). 2023  
*Work done during internship at Adobe Research\**
2. [Divide, Evaluate, and Conquer: A Compositional Perspective on Evaluating and Improving Text-to-Image Alignment](#)  
[Jaskirat Singh](#), and [Liang Zheng](#). 2023  
NeurIPS 2023
3. [High-Fidelity Guided Image Synthesis with Latent Diffusion Models](#)  
[Jaskirat Singh](#), [Stephen Gould](#), and [Liang Zheng](#). 2023  
CVPR 2023
4. [Paint2Pix: Interactive Painting based Progressive Image Synthesis and Editing](#)  
[Jaskirat Singh](#), [Liang Zheng](#), [Cameron Smith](#), and [Jose Echevarria](#). 2022  
ECCV 2022
5. [Intelli-Paint: Towards Developing Human-like Painting Agents](#)  
[Jaskirat Singh](#), [Cameron Smith](#), [Jose Echevarria](#), and [Liang Zheng](#). 2022  
ECCV 2022, US Research Patent (Adobe)
6. [Combining Semantic Guidance and Deep Reinforcement Learning For Generating Human-Level Paintings](#)  
[Jaskirat Singh](#), and [Liang Zheng](#). 2021  
CVPR 2021

## Journal.....

7. [Probabilistic and Semantic Descriptions of Image Manifolds and Their Applications](#)  
[Peter Tu](#), [Zhaoulan Yang](#), [Richard Hartley](#), [Zhiwei Xu](#), [Jing Zhang](#), [Dylan Campbell](#), [Jaskirat Singh](#), [Tianyu Wang](#). 2023  
Frontiers in Computer Science, 2023

## Professional Experience

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### Professional.....

#### Research Intern

*Creative Intelligence Lab with Dr. Zhe Lin & Dr. Jianming Zhang*

**Adobe Research**

*Jun' 23 – Sep' 23*

#### Research Assistant

*Geometry of Learning Lab with Prof. Richard Hartley*

**Australian National University**

*Mar' 23 – Jun' 23*

#### Research Intern

*Graphics Intelligence and Learning Lab with Dr. Jose Echevarria & Cameron Smith*

**Adobe Research**

*Jun' 21 – Dec' 21*

#### Research Scholar

*Computer Vision Lab with Prof. Liang Zheng*

**Australian National University**

*Dec' 20 – Feb' 21*

#### Machine Learning Research Engineer

*Role: Mathematical Modeling for Optimizing Advertising Solutions.*

**Yahoo Japan**

*Oct' 17– Sept '18*

### Teaching.....

#### Teaching Assistant

*Introduction to Machine Learning (COMP6670)*

**Australian National University**

*Jul' 20 – Nov' 20*

### Services.....

#### Conference Reviewer

*CVPR'24, ICCV'23, CVPR'23, CVPR'22, TVCJ'21, ACM-TOMM'21, ICIG'21.*

## Honors and Achievements

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- 🎓 **Awarded University Medal** for academic excellence at the Australian National University.
- 🎓 **Awarded Chancellors Letter of Commendation** at the Australian National University.
- **Awarded ANU Computer Science Summer Research Grant** (\$5k).
- **Invited for delivering a tutorial** on "Applying deep reinforcement learning for computer vision research" by the **Australian Centre for Robotic Vision (ACRV)** group.
- Our project "Connected Stories of Australia" has been awarded as the **best innovative design project** by the **National Museum of Australia**.
- **Won national hackday at Yahoo Japan**, among 54 competing teams from all across Japan, for developing a real-time application for **facial attribute modification using reversible GANs**.
- Received **IIT Delhi Merit Award & Scholarship** for outstanding academic performance.
- Secured **All India Rank 128 in IIT-JEE** among 1.4 million aspirants appearing for the exam.
- 🏆 Won the **Silver Medal at National FIDE Rated Chess Tournament**.

## Advanced Courses

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- Advanced Topics in Machine Learning (Convex & Differentiable Optimization)      Class rank: 1
- Statistical Machine Learning (Bayesian Neural Networks)      Class rank: 1
- Advanced Topics in Computer Vision (Probabilistic Graphical Models)      Class rank: 1
- Advanced Topics in Mechatronics (Computer Vision and Deep Learning)