Jaskirat Singh | Academic CV

3rd year Ph.D. Student in Computer Science | Intern @ Meta GenAI

✉ Email: jaskirat.singh@anu.edu.au   🌐 Homepage   🎓 Google Scholar

Research Interests

Video Generation, Controllable Image Synthesis & Editing, Foundational Vision-Language Models

Professional Experience

Research Scientist Intern   **Meta GenAI**
Imagine-Core (Video Generation) with Prof. Michael Cohen   *May' 24 – Present*

Research Scientist Intern   **Adobe Research**
Creative Intelligence Lab with Dr. Zhe Lin & Dr. Jianming Zhang   *Jun' 23 – Sep'23*

Research Assistant   **Australian National University**
Geometry of Learning Lab with Prof. Richard Hartley   *Mar' 23 – Jun'23*

Research Scientist Intern   **Adobe Research**
Graphics Intelligence and Learning Lab with Dr. Jose Echevarria   *Jun' 21 – Dec' 21*

Machine Learning Research Engineer   **Yahoo! Japan**
Mathematical Modeling for Optimizing Generative Image Content   *Oct' 17– Sept '18*

Education

The Australian National University   **Expected**
Ph.D. in Computer Science   *Sep' 21–Present*
Supervisors: Prof. Liang Zheng and Prof. Stephen Gould

The Australian National University   **GPA: 7/7**
Master of Machine Learning and Computer Vision   *Jul' 19–Jul' 21*
🎓 Awarded University Medal for Exceptional Academic Excellence

Indian Institute of Technology, Delhi   **GPA: 9.3/10**
Bachelor of Technology (B.Tech), Electrical Engineering   *2013–2017*
Specialization in Intelligent and Cognitive systems

Selected Publications

1. Negative Token Merging: Image-based Adversarial Feature Guidance
   Jaskirat Singh, Lindsey Li, Weijia Shi, Ranjay Krishna, Yejin Choi, Pang Wei Koh, Michael F. Cohen, Stephen Gould, Liang Zheng, Luke Zettlemoyer.
   🏆 Image based classifier-free guidance to improve diversity, quality in few lines of code   *2024*

2. 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.
   CVPR 2024 , US Research Patent (Adobe)   *2024*

3. OpenDevin: An Open Platform for AI Software Developers as Generalist Agents
   Best LLM Agent for 🏆 SWE-Bench Verified & 🏆 SWE-Bench-Lite.
   ICLR 2025   *2024*

4. [IMPUS: Image Morphing with Perceptually-Uniform Sampling Using Diffusion Models](#)
Zhaoulan Yang, Zhengyang Yu, **Jaskirat Singh**, Zhiwei Xu, Jing Zhang, Dylan Campbell, Peter Tu, and [Richard Hartley](#). *2023*
ICLR 2024

5. [Divide, Evaluate, and Conquer: A Decompositional Perspective on Evaluating and Improving Text-to-Image Alignment](#)
Jaskirat Singh, and [Liang Zheng](#). *2023*
NeurIPS 2023

6. [High-Fidelity Guided Image Synthesis with Latent Diffusion Models](#)
Jaskirat Singh, [Stephen Gould](#), and [Liang Zheng](#). *2023*
CVPR 2023

7. [Paint2Pix: Interactive Painting based Progressive Image Synthesis and Editing](#)
Jaskirat Singh, [Liang Zheng](#), Cameron Smith, and [Jose Echevarria](#). *2022*
ECCV 2022

8. [Intelli-Paint: Towards Developing Human-like Painting Agents](#)
Jaskirat Singh, Cameron Smith, [Jose Echevarria](#), and [Liang Zheng](#). *2022*
ECCV 2022, US Research Patent (Adobe)

9. [Combining Semantic Guidance and Deep Reinforcement Learning For Generating Human-Level Paintings](#)
Jaskirat Singh, and [Liang Zheng](#). *2021*
CVPR 2021

Honors and Achievements

- 🎓 **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.**

Referees

- **Prof. Liang Zheng** - Associate Professor   🏛 Australian National University
- **Prof. Stephen Gould** - Senior Professor   🏛 ANU, Amazon Research
- **Prof. Marcus Hutter** - Senior Research Scientist   🏛 Google Deepmind
- **Dr. Jianming Zhang** - Principal Research Scientist   🏛 Adobe Research
- **Dr. Zhe Lin** - Senior Principal Research Scientist   🏛 Adobe Research
- **Prof. Michael Cohen** - Director of Computational Photography   🏛 Meta GenAI, UW