Anand Bhattad

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Education

University of Illinois Urbana-Champaign (UIUC), USA

Ph.D., Computer Science 2019 – 2024
Thesis: **Exploring Knowledge in Generative Models**
Thesis committee: **David Forsyth (Advisor)**, Alexei (Alyosha) Efros, Bill Freeman, Derek Hoiem, Svetlana Lazebnik and Shenlong Wang

M.S., Computer Science 2017 – 2018
M.S., Civil Engineering 2015 – 2017

National Institute of Technology Karnataka (NITK) Surathkal, India

B.Tech., Civil Engineering 2011 – 2015

Experience

Toyota Technological Institute at Chicago, Research Assistant Professor 2023 –

University of California Berkeley, Visiting Scholar; Host: Alexei (Alyosha) Efros 2024 –

Allen Institute of Artificial Intelligence, Research Intern with Ani Kembhavi 2023

Intel, Research Intern with Stephan R. Richter in Vladlen Koltun's team 2021

NVIDIA, Research Intern with Andrew Tao and Bryan Catanzaro 2020

Fyusion Inc, Research Intern with Abhishek Kar and Rodrigo Ortiz Cayon 2019

Siemens Corporate Technology, Computer Vision & DL Intern with Jan Ernst 2017

Michigan State University, Research Intern with Prof. Nizar Lajnef 2014

IIIT Hyderabad, Research Intern with Prof. Ramacharla Pradeep Kumar 2013

Preprints/Under Review (Self-selected Key Papers)

4. **Latent Intrinsics Emerge from Training to Relight**
X. Zhang, W. Gao, S. Jain, M. Maire, D.A. Forsyth, **A. Bhattad**
In Submission

3. **From an Image to a Scene: Learning to Imagine the World from a Million 360° Videos**
M. Wallingford, **A. Bhattad**, A. Kusupati, V. Ramanujan, M. Deitke, A. Kembhavi, R. Mottaghi, W. Ma, A. Farhadi
In Submission

2. **Generative Models: What do they know? Do they know things? Let's find out!**
X. Du, N. Kolkin, G. Shakhnarovich, **A. Bhattad**
In Submission

1. **ZeroComp: Zero-shot Object Compositing from Image Intrinsics via Diffusion**
Z. Zhang, F. Fortier-Chouinard, M. Garon, **A. Bhattad**, JF. Lalonde
In Submission

Refereed Conference Papers (Self-selected Key Papers)

11. **Videoshop: Localized Semantic Video Editing with Noise-Extrapolated Diffusion Inversion**
X. Fan, **A. Bhattad***, R. Krishna* (* for equal advising)
ECCV 2024

10. ***Shadows Don't Lie and Lines Can't Bend!* Generative Models don't know Projective Geometry...for now**
A. Sarkar*, H. Mai*, A. Mahapatra*, S. Lazebnik, D.A. Forsyth, **A. Bhattad**
CVPR 2024

9. **StyLitGAN: Image-based Relighting via Latent Control**
A. Bhattad, J. Soole, D. A. Forsyth
CVPR 2024

8. **StyleGAN Knows Normals, Depth, Albedo, and More**
A. Bhattad, D. McKee, D. Hoiem, D. A. Forsyth
NeurIPS 2023

7. **OBJect 3DIT: Language-guided 3D-aware Image Editing**
O. Michel, **A. Bhattad**, E. Vanderbilt, R. Krishna, A. Kembhavi, T. Gupta
NeurIPS 2023

6. **Improving Equivariance in State-of-the-Art Supervised Depth and Normal Predictors**
Yuanyi Zhong, **A. Bhattad**, Y. Wang, D. A. Forsyth
ICCV 2023

5. **Cut-and-Paste Object Insertion by Enabling Deep Image Prior for Reshading**
A. Bhattad, D. A. Forsyth
3DV 2022 **(Spotlight presentation)**

4. **DIVeR: Real-time and Accurate Neural Radiance Fields with Deterministic Integration for Volume Rendering**
L. Wu , J. Y. Lee, **A. Bhattad**, Y. Wang, D. A. Forsyth
CVPR 2022 **(Oral presentation; Best Paper Finalist)**

3. **View Generalization for Single Image Textured 3D Models**
A. Bhattad, A. Dundar, G. Liu, A. Tao, B. Catanzaro
CVPR 2021

2. **Unrestricted Adversarial Perturbations via Semantic Manipulation**
A. Bhattad*, M. J. Chong*, K. Liang, B. Li, D. A. Forsyth (* for equal contribution)
ICLR 2020

1. **Improved Style Transfer with Calibrated Metrics**
M. Yeh*, S. Tang*, **A. Bhattad**, C. Zou, D. A. Forsyth (* for equal contribution)
WACV 2020

Refereed Workshop Papers

5. **Intrinsic LoRA: A Generalist Approach for Discovering Knowledge in Generative Models**
X. Du, N. Kolkin, G. Shakhnarovich, **A. Bhattad**
CVPR-W 2024 **(Oral presentation)**
workshops: Generative Models for CV, AI for 3D Gen, SyntaGen, SynthData4CV, Dataset Distillation

4. **UrbanIR: Large-Scale Urban Scene Inverse Rendering from a Single Video**
Z. Lin, B. Liu, Y. Chen, D.A. Forsyth, J. Huang, **A. Bhattad**, S. Wang
CVPR-W 2024
workshop: SynthData4CV

3. **MIMIC: Masked Image Modeling with Image Correspondences**
   K. Marathe, M. Bigverdi, N. A. Khan, T. Kundu, P. Howe, S. Ranjit, **A. Bhattad**, A. Kembhavi, L. Shapiro, R. Krishna
   CVPR-W 2024
   workshop: 3D with Multi-View Supervision (Archival long paper)

2. **Big but Imperceptible Adversarial Perturbations via Semantic Manipulation**
   A. Bhattad*, M. J. Chong*, K. Liang, B. Li, D. A. Forsyth (* for equal contribution)
   CVPR-W 2019 **(Oral presentation)**
   workshop: Adversarial Machine Learning in Real-World Computer Vision Systems

1. **Detecting Anomalous Faces with "No Peeking" Autoencoders**
   A. Bhattad, J. Rock, D. A. Forsyth
   CVPR-W 2018 **(Oral presentation)**
   workshop: Vision with Biased and Scarce Data

Technical Reports

3. **Blocks2World: Controlling Realistic Scenes with Editable Primitives**
   V. Vavilala, S. Jain, R. Vasanth, **A. Bhattad**, D.A. Forsyth
   Technical Report, arXiv 2023

2. **Make It So: Steering StyleGAN for Any Image Inversion and Editing**
   A. Bhattad, V. Shah, D. Hoiem, D. A. Forsyth
   Technical Report, arXiv 2023

1. **SIRfyN: Single Image Relighting from your Neighbors**
   D. A. Forsyth, **A. Bhattad**, P. Asthana, Y. Zhong, Y. Wang
   Technical Report, arXiv 2021

Courses Designed

Past Meets Present: A Tale of Two Visions, TTIC; *Course Instructor* Spring 2024

- Designed and developed a new course on Computer Vision, combining historical and modern approaches
- Taught a class of 20+ students from TTIC and UChicago, fostering an engaging learning environment

Teaching Assistant

Computer Science, UIUC; *Graduate Teaching Assistant* 2016 – 2018

- Applied Machine Learning (CS498 AML), Fall 2018
  - Designed and implemented Kaggle competitions to enhance student learning and engagement
- Data Structures (CS 225), Spring 2017
  - Developed assignments, exams, and labs to assess and reinforce student understanding
- Introduction to Computing (CS 101), Spring 2016 & Fall 2016
  - Recognized as an **Excellent TA** for effective teaching and student support

Mentoring

Doctoral Students

- Xiao Zhang, University of Chicago, Project on Latent Intrinsics (see UR#4) 2023 –
- Matthew Wallingford, University of Washington, Project on 360° videos (see UR#3) 2023 –
- Xiaodan Du, TTIC, Paper at CVPR-W (see WP#1) | Paper in Review (see UR#2) 2023 –
- Zitian Zhang, Université Laval, Paper in Review (see UR#1) 2023 –
- Xiang Fan, University of Washington, Paper at ECCV 2024 (see CP#11) 2023 –

- Ayush Sarkar, UIUC, Paper at CVPR (see CP#10) 2023 –
- Vaibhav Vavilala, UIUC, Project on Blocks World (see TR#3) 2023 –
- Kalyani Marathe, University of Washington, Paper at CVPR-W (see WP#1) 2023 –
- Zhi-Hao Lin, UIUC, Paper at CVPR-W (see WP#4) 2023 –

Master's Students

- Hanlin (Asher) Mai, UIUC, Paper at CVPR (see CP#10) 2023 –
- Frédéric Fortier-Chouinard, Université Laval, Paper in Review (see UR#1) 2023 –
- Seemandhar Jain, UIUC | Next: PhD Student at UCSD , Paper in submission (see UR#4) 2023 – 2024
- James Soole, UIUC | Next: MATLAB, Paper at CVPR (see CP#9) 2023
- Feiran Wang, UIUC, Project on NeRF + Latent Illumination 2023
- Kexuan (Klaus) Zou, UIUC | Next: Software Engineer at NVIDIA, Project on 2D Meshes 2019 – 2020

Bachelor's Students

- Joshua Ahn, University of Chicago, Project on Wavelets in Neural Fields 2024 –
- Amitabh Mahapatra, UIUC, Paper at CVPR (see CP#10) 2023 –
- Kuan-Sheng Chen, UIUC, Project on Improving Generative Models with Intrinsic Images 2023
- Oscar Michel, AI2 | Next: PhD Student at NYU, Paper at NeurIPS (see CP#7) 2023
- Liwen Wu, UIUC | Next: PhD Student at UCSD, Paper at CVPR (see CP#4) 2022
- Brian Chen, UIUC | REU at CMU's RI | Next: Hive AI, Project on Lighting Correction 2020 – 2022
- Anchu Zhu, UIUC | Next: MS in CS at USC, Project on Anomaly Detection 2018 – 2019

Doctoral Committees

- Xin Yuan, University of Chicago, Advisor: Michael Maire 2024

Invited Talks

What do Generative Image Models Know?

- IIIT Hyderabad, India; Vision Seminar Jan 2024
- TTIC; Research@TTIC Oct 2023
- Exactech, Inc.; Tech Talk Oct 2023

Exploring Knowledge in Generative Models

- Stanford University in Jiajun Wu's group Jun 2023
- University of Tubingen, Autonomous Vision Group May 2023

What do Generative Models know about Geometry and Illumination?

- UC Berkeley: Vision Seminar Apr 2023
- NVIDIA Research Apr 2023
- MIT: Vision and Graphics Seminar Apr 2023
- CMU: VASC Seminar Mar 2023
- UW: RAIVN Vision Seminar Mar 2023

Learning about Light without Labeled Data

- UMD: Vision Seminar Mar 2023
- UCSD: Pixel Cafe Seminar Feb 2023
- TTIC: Research Talk Feb 2023

Drag-and-Drop Rendering: Towards in the wild image editing

- CMU: Misc-Read Vision Reading Group Aug 2021

Services & Leadership

Lead Organizer, ECCV-W on "Knowledge in Generative Models" Sep 2024
Co-Lead Organizer, TTIC-W on "Multimodal Artificial Intelligence " Aug 2024

Lead Organizer, CVPR-W on "CV 20/20: A Retrospective Vision" Jun 2024
Lead Organizer, CVPR-W on "Scholars & Big Models: How Can Academics Adapt?" Jun 2023
Lead Organizer, UIUC Vision Workshop at Allerton Apr 2023
Organizer, UIUC Speaker Series (started new weekly seminars from speakers outside UIUC) 2021 – 2023
Organizer, Vision Lunch (reading group) 2021 – 2023
Program Committee, CVPR-W on "Adversarial ML in Real-World Computer Vision Systems" 2019
Program Committee, ICML-W on "Security and Privacy in Machine Learning" 2019
Organizer, UIUC Summer Vision Coffee 2018

Area Chair, Computer Vision Conferences 2024 –

- Serving as an AC for WACV 2025

Reviewer, Computer Vision Conferences 2018 –

- Reviewer for CVPR, NeurIPS, ECCV and ICCV conferences and workshops; PAMI and IJCV journals
- **Outstanding Reviewer** for ICCV 2023
- **Outstanding Emergency Reviewer** for CVPR 2021

Co-Founder, SchoolEngg 2013 – 2015

- Forum for high-school students; providing firsthand knowledge of all engineering disciplines
- Currently, renamed as *PrepLift*, an education counselling start-up in India

Co-Founder, American Society of Civil Engineers (ASCE) NITK Chapter 2013 – 2015

- Co-Founded the first ASCE student chapter of India
- Served as treasurer for one year and as a senior advisor for the second year
- Coordinated with board members, faculty, and outside organizations to facilitate 10+ events