

César Díaz Blanco

blancocd.com · github.com/blancocd · [linkedin.com/in/blancocd](https://www.linkedin.com/in/blancocd) · blancocedi@gmail.com

RESEARCH INTERESTS

I focus on efficient and scalable 3D Vision, with my recent work centered on Feed-Forward Gaussian Splatting for geometrically accurate scene reconstruction. Moving forward, I aim to leverage these scalable approaches to advance World Models. I see highly efficient, Feed-Forward 3D and 4D Reconstruction serving as a foundational layer for these systems, providing the vital geometric grounding necessary for temporally consistent and interactive representations.

EDUCATION

Master of Science in Machine Learning | *University of Tübingen* 2023–26

- ▶ GPA: 1.61/1.00
- ▶ Relevant Coursework: Virtual Humans, 3D Vision, Massive Parallel Computing, Computer Vision Seminar

Bachelor of Science in Engineering Physics | *University of Illinois at Urbana-Champaign (UIUC)* 2019–23

- ▶ Graduated with Honors (GPA: 3.94/4.00) · Computer Science Minor (GPA: 4.00/4.00)
- ▶ Relevant Coursework: Data Structures, Algorithms, Computer Architecture, Systems Programming, Deep Learning for Computer Vision, Computational Photography, and Machine Perception

EXPERIENCE

Master Thesis | *Autonomous Vision Group, Tübingen AI Center* September 2025–May 2026

Topic: Geometrically Accurate Feed-Forward Gaussian Splatting for Unbounded Scenes

Advisors: Zehao Yu, Haofei Xu · **Examiners:** Prof. Dr.-Ing. Andreas Geiger, Prof. Dr. Gerard Pons-Moll

- ▶ Implemented a 3D Smoothing Filter to limit the frequency of predicted Gaussians, thus stabilizing training and enabling encoder fine-tuning on new renderers and self-supervised geometric losses
- ▶ Improved mesh reconstruction precision on the Tanks and Temples (TnT) dataset by 73% over the photometric-only encoder, matching per-scene optimization performance
- ▶ Reduced absolute relative error for depth estimation across MipNeRF360, TnT, and DL3DV by 7% against the photometric-only encoder and 31% against Depth Anything 3
- ▶ Prototyped encoders for triangle and mesh primitives, showing that their inherent discreteness and connectivity lead to unstable learning, while their decreased expressivity results in a higher primitive count and slower training

Research Project | *Real Virtual Humans Group, Tübingen AI Center* January 2025–October 2025




Topic: Text-Driven Multi-View Fashion Editing



Advisors: Dr. Garvita Tiwari, Berna Kabadayi, Nikita Kister · **Examiners:** Prof. Dr. Gerard Pons-Moll

- ▶ Designed a novel two-stage, model-agnostic framework for text-driven, multi-view consistent editing
- ▶ Developed an evaluation suite for the outer garment removal task with three key metrics: 3D consistency of the generated clothing, VLM-judged generation quality and removal success, and preservation of unmodified regions
- ▶ Achieved a 90% removal success rate on the 4D-DRESS dataset and validated 3D consistency by optimizing a 3DGS representation on 10 generated views, yielding 28.44 PSNR on 10 held-out generated images


Working Student in Computer Vision and Software Engineering | *DeepScenario* September 2024–May 2025

- ▶ Designed a pipeline for multi-view detection and tracking from ego camera sensors
- ▶ Prepared the data release of reconstructed scenes by developing mesh rendering scripts for thumbnails and mesh cleaning scripts to reduce mesh extent according to the tracked vehicles
- ▶ Modernized Python dependency management by migrating to uv, ensuring environment reproducibility across local development and cloud CI/CD by robustly handling dynamic internal package resolutions
- ▶ Implemented automated AWS S3 object tagging to optimize storage costs by automatically purging old files






Practical Project  | *Real Virtual Humans Group* , *Tübingen AI Center* May 2024–October 2024
Topic: Gaussian Head Visualizer. Compatible with PhysHead  (CVPR 2026) models
Advisors: Berna Kabadayi · **Examiners:** Prof. Dr. Gerard Pons-Moll
▶ Enabled real-time curly hair editing with controllable amplitude and frequency
▶ Implemented a Gaussian axes view using OpenGL vertex and fragment shaders to visualize hair Gaussians

Undergraduate Research Assistant | *Computational Astrophysics Group* , *UIUC* May 2021–May 2023
Topic: Electron Heating Models in General Relativistic Magnetohydrodynamic Fluid Simulation 
Advisors: Vedant Dhruv, Prof. Dr. Charles F. Gammie
▶ Developed test problems in C/C++ to assess the correct evolution of the fluid’s entropy in the group’s second-order, energy-conservative simulation code
▶ Analyzed error convergence of the fluid variables to the analytical solution by calculating its norm across multiple parameters and timescales

OUTREACH

Buddy | *Computation & Cognition Tübingen Summer Internship*  July–September 2025
▶ Primary contact for visiting interns from low- and middle-income countries historically underrepresented in STEM
▶ Directly mentored 3 of the 9 interns, assisting with housing logistics, cultural integration, and social activities

HONORS

Quantum Ideas Summer School Travel Grant  | *Duke Pratt School of Engineering* 2023
IBM-IL Discovery Accelerator Institute Research Fellowship  | *The Grainger College of Engineering, UIUC* 2022
▶ Research on Qutrit Quantum Systems with Prof. Wolfgang Pfaff and Prof. Eric Chitambar
Yee Seung Ng Scholarship  | *Department of Physics, UIUC* 2022
▶ Recognizes an outstanding junior or senior international engineering physics student
Richard K. Cook Scholarship  | *Department of Physics, UIUC* 2021
▶ Recognizes an undergraduate engineering physics student at the end of his or her sophomore year
World Educational Robotics (WER) Contest | *5th Place*  | *Shanghai, China* 2017

SKILLS

Programming: Python · C++ · CUDA · HTML/CSS · \LaTeX
ML & Frameworks: PyTorch · PyTorch Lightning · Weights & Biases · einops · jaxtyping · beartype
DevOps & Tools: AWS S3 · Docker · Terraform · CI/CD (Bitbucket Pipelines) · pytest · mypy
Languages: Spanish (Native) · English (Fluent) · German (Basic)

REFERENCES

Prof. Dr.-Ing. Andreas Geiger
Professor of Computer Science
University of Tübingen
✉ a.geiger@uni-tuebingen.de

Dr. Jacques Kaiser
Chief Technology Officer
DeepScenario
✉ jacques@deepscenario.com

Prof. Dr. Gerard Pons-Moll
Professor of Computer Science
University of Tübingen
✉ gerard.pons-moll@uni-tuebingen.de

Prof. Dr. Charles F. Gammie
Ikenberry Endowed Chair in Physics and Astronomy
University of Illinois at Urbana-Champaign
✉ gammie@illinois.edu