

César Díaz Blanco



Tübingen, Germany • +1 (815)-317-6895 • +49 (163)-128-1079 • blancocedi@gmail.com

Education

University of Tübingen

M.Sc. in Machine Learning (1.73/1.00)

Tübingen, Germany

since 10/2023

University of Illinois at Urbana-Champaign

B.Sc. in Engineering Physics (3.94/4.00 GPA) with Highest Honors

Minor in Computer Science (4.00/4.00 GPA)

Urbana-Champaign, USA

08/2019 – 05/2023

Coursework: Data Structures, Algorithms, Computer Architecture, Systems Programming

Deep Learning, Computational Photography, and Machine Perception

Work Experience

Working Student

Software Engineer

Stuttgart, Germany

since 09/2024

- Developed interactive visualization scripts with the `vedo` 3D plotting library.
- Prepared the data release of reconstructed scenes by adjusting mesh size.
- Improved code readability by adhering to PEP8 guidelines through `mypy`.

Projects

Dynamic Gaussian Splatting Viewer for Head Avatars

- Enabled on-the-fly curly hair editing with controllable amplitude and frequency
- Implemented a gaussian axes view with OpenGL using vertex and fragment shaders
- Optimized loading of frames either from dynamic avatars or hair editing features

Neural network framework from scratch using NumPy

- Implemented backpropagation with support for sigmoid, softmax, ReLU, and linear layers
- Built in several optimizers including Adam, mini-batch SGD, and SGD

Research Experience

IBM-IL Discovery Accelerator Institute

Qutrit Quantum Systems Researcher

Urbana, USA

08/2022 – 05/2023

- Constructed a Hamiltonian to manipulate a transmon as a qutrit through EM pulses
- Developed Monte Carlo simulations to identify optimal ways to measure multilevel coherence

Computational Astrophysics with Professor Charles F. Gammie

Student Researcher and Test Developer

Urbana, USA

05/2021 – 05/2023

- Implemented test problems on C/C++ to assess the correct evolution of the fluid's entropy in the group's second-order, conservative simulation parallel code
- Analyzed error convergence of the fluid variables to the analytical solution by calculating its norm across multiple parameters and several timescales

Skills

- Languages: Spanish (Native), English (Fluent), German (Basic)
- Coding: Python (Advanced), C/C++ (Intermediate), PyTorch (Intermediate), SQL, Java (beginner)

Presentations

Illinois Scholars Undergraduate Research Expo

Multilevel Coherence and Manipulation of Transmon Qutrits

Urbana, USA

04/2023

Astronomy Summer Undergraduate Research Symposium

Electron Heating in the relativistic fluid code KCHARMA

Urbana, USA

08/2022

Teaching Experience

Private Tutor

AP Calculus BC and AP Physics C

Urbana, USA

08/2022 – 12/2022

- Worked one-on-one with junior high school students to understand their reasoning process.
- Developed comprehensive and general frameworks to tackle most Physics problems at the high school and early college level coursework.

Extracurriculars

Introduction to digital cinema production

Director, camera operator, actor

Urbana, USA

08/2022 – 12/2022

- Helped amateur actors through drama scenes to avoid pedantic or unserious performances.
- Worked around the constraints of filming with smartphones and confined places.

Guidance for Physics Students Club

Member

Urbana, USA

08/2019 – 05/2021

- Learned about doctorate students' research on biophysics, quantum physics and astrophysics.

Honors and Awards

- Quantum Ideas Summer School Travel Grant, STAQ at Duke University 2023
- Yee Seung Ng Scholarship Recipient, Physics Department at UIUC 2022
- Richard K. Cook Scholarship Recipient, Physics Department at UIUC 2021
- Graduated with Academic Excellence from High School. Unweighted: 95.37% 2018
- 5th place at World Educational Robotics Contest, Shanghai, China 2017

References

Charles Gammie

Professor of Astronomy, Chair in Physics
University of Illinois at Urbana-Champaign
gammie@illinois.edu

Eric Chitambar

Associate Professor in Computer Engineering
University of Illinois at Urbana-Champaign
echitamb@illinois.edu

Shenlong Wang

Assistant Professor in Computer Science
University of Illinois at Urbana-Champaign
shenlong@illinois.edu

Svetlana Lazebnik

Professor in Computer Science
University of Illinois at Urbana-Champaign
slazebni@illinois.edu