

Bharat Vyas

📍 Dublin, Ireland ✉️ vyasb@tcd.ie ☎️ +353 899761830 🔗 vyasb.github.io

Profile

Recent PhD graduate in Computer Science & Statistics, with a strong background in machine learning. With a robust background in research and collaborative projects, I am eager to bring my expertise to dynamic and innovative team environments.

Research Experience

October 2024 – present
Dublin, Ireland

Trinity College Dublin, Postdoctoral Researcher

- Evaluating empathic responses to expressive virtual humans using eye-tracking and facial-EMG.
- Developing models for full-body motion reconstruction from sparse data inputs.
- Applying LSTM and Transformer models for motion style classification and reconstruction.

October 2023 –
March 2024
Tübingen, Germany

Amazon Development Center Germany GmbH, Applied Science Intern

- Collaborated on VR based Human-Computer Interaction project, leading experiment design, data collection, and analysis for future VR applications.
- Managed data collection and analyzed motion/qualitative data, deriving insights.
- Presented two POCs at "Innovation Days" hackathons.

March 2022 – May 2022
Rennes, France

INRIA, Rennes, Research Intern

Supervisor: Prof. Ludovic Hoyet, Prof. Julien Pettre

- Collaborated with the VirtUs team to explore GPU-accelerated Isaac Gym for rapid policy training and crowd generation of physics-based characters.
- Conducted research on the relationship between motion and body shape in virtual humans.
- Investigated factors influencing user perception of virtual human motion, with a focus on walking animations.

June 2021 – August 2021
Tübingen, Germany

Max Planck Institute of Intelligent Systems, Research Intern

Supervisor: Prof. Michael Black

- Investigated the application of Deep Reinforcement Learning (DRL) techniques for animating physics-based virtual characters.
- Utilized the SMPL body model alongside regression-based capsulization methods to create diverse character models.
- Implemented mass effect simulation to introduce significant variations in character motion, enhancing realism and diversity.

Tools & Frameworks

- **ML frameworks**

TensorFlow, PyTorch

- **3D Game Engine**

Unity 3D

- **Packages & Tools**

NumPy, Scikit-Learn, Pandas, Jupyter Notebook, AWS SageMaker, EC2, S3

- **Motion Capture System**

Vicon, Xsens, Noitom

Professional Experience

May 2019 – July 2019

Enterces Labs Pvt. Ltd., Robotics Trainer & Developer

October 2018 – April 2019

Grainpad Pvt. Ltd., Robotics Engineer

August 2018 –

September 2018

Grainpad Pvt. Ltd., Mechatronics Intern

Education

2020 – 2024

Dublin, Ireland

Ph.D. in Computer Science, Trinity College Dublin

Supervisor: Carol O'Sullivan

Topic: Investigating Motion Perception and Physics-based Methods for Body Shape Diversity in Virtual Avatars

CLIFE [🔗](#) Project- Marie Skłodowska-Curie Actions ITN European Project

2019 – 2020

Dublin, Ireland

M.Sc. in Computer Science (Virtual & Augmented Reality),

Trinity College Dublin

2014 – 2018

Delhi, India

Bachelor of Technology (Mechanical & Automation Engineering),

GGs Indraprastha University

Publications

Exploring the Perception of Center of Mass changes for VR Avatars, Bharat Vyas, Ludovic Hoyet, Carol O'Sullivan. ICAT-EGVE 2023 - International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments, Dec 2023, Dublin [🔗](#)

****Best Paper Award****

ShapeVerse: Physics-based Characters with Varied Body Shapes,

Bharat Vyas, Carol O'Sullivan. Eurographics 2024 Poster Papers, Apr 2024, Cyprus [🔗](#)

Shape Shifters: Does Body Shape Change the Perception of Small-Scale Crowd Motions?, Bharat Vyas, Carol O'Sullivan - arXiv preprint arXiv:2412.16151, IEEEVR VHCIE workshop 2025, France [🔗](#)

Programming Skills

C++	<div><div></div></div>	Python	<div><div></div></div>
C#	<div><div></div></div>	R Programming	<div><div></div></div>
GLSL	<div><div></div></div>		

Teaching Work

Computer Graphics - CS7GV6 (2020, 2021, 2022) [↗](#)

Real-Time Rendering - CS7GV3 (2021) [↗](#)

Real-Time Animation - CS7GV5 (2021) [↗](#)

Computer Engineering - CSU11E03 (2023) [↗](#)

References

1.) Betty J. Mohler

Principal Applied Scientist
Amazon Development Center GmbH
Tübingen
Germany

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2.) Ludovic Hoyet

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