Manas Kale

✉ manaskale@hotmail.com
🖥 manas96.github.io
linkedin.com/in/manaskale/

Education

2021 - 2023 (expected)	**Master of Science (Thesis), McGill University**, *Computer Science.*
2014 - 2018	**Pune University (India)**, *Bachelor of Engineering (Computers).* First class with distinction

Research Interests

Computer Graphics, Physically Based Simulations, Machine Learning methods in Graphics.

Research & Professional Experience

Sept 2021– Ongoing	**McGill Graphics Lab, Montreal**, MSc. Thesis student under Prof. Paul Kry. Research on methods to speed up rigid body simulations using adaptive algorithms.
March 2022– Ongoing	**Huawei Noah's Ark Lab, Montreal**, Research Intern . Research on large-scale (distributed) physics simulation.
Feb 2019 – Feb 2021	**Infinite Uptime, Pune (India)**, Data Scientist. Research & large-scale deployment contributions across product stack - embedded edge device, cloud data processing and machine learning algorithms. Led to sign-on by new customers and a patent.
July 2018–Jan 2019	**NICE Interactive Solutions, Pune (India)**, Associate Software Engineer. Implemented new software features for billing & tenant management per business requirements in an agile project management environment.
June 2017–August 2017	**Tata Consultancy Services, Pune (India)**, Intern. Created prototype for real-time city asset (pumps, motors, traffic lights etc.) data monitoring and issuing warnings.
June 2017–August 2017	**Maharashtra Institute of Technology, Pune (India)**, Undergraduate researcher. Performed independent research to identify drivers based on how they provide input to a physically accurate 3D racing game.

Teaching Experience

Winter 2022	**COMP 250 (Introduction to Computer Science)**, *McGill University*, Teaching Assistant under Prof. Michael Langer. Responsibilities included preparing assignments, teaching and holding office hours. Approximately 500 registered students with 14 TA's. Received multiple messages of appreciation.
Fall 2021	**COMP 202 (Introduction to Programming)**, *McGill University*, Teaching Assistant under Jonathan Campbell. Responsibilities included preparing assignments, writing tests, conducting live coding sessions and holding office hours. Approximately 500 registered students with 13 TA's. Received multiple messages of appreciation.

Publications

2018	M. Kale and M. V. Bedekar, "Driver Profiling Using Realistic Racing Games", 2018 Second International Conference on Inventive Communication and Computational Technologies (ICICCT), Coimbatore, 2018, pp. 13-17. doi: 10.1109/ICICCT.2018.8473154 ⬀

Patents

2020	S. Punekar, M. Kale, R. Bhinge, JD Margulici, "SYSTEM AND METHOD FOR SEGMENTING TRANSMISSION OF DATA", Application No.202021020386 A (Published by Indian Patent Office)

Awards & Achievements

2021   **McGill University**.
Kharusi Family International Science Fellowship for outstanding Master's students ($5000)

2019   **Infinite Uptime**.
Most valuable employee of 2019

2017   **Government of India (Smart India Hackathon 2017 ⬈)**.
1st Runner Up (351 participating teams), won ₹75,000. Work acknowledged by Prime Minister Narendra Modi.

Projects

2020   **Raytracer ⬈**.
Photorealistic raytracer from scratch written in C++.

2019   **Satellite tracking ground station for SatNOGS network ⬈**.
Set up software defined radio to extract telemetry from MOVE-II cubesat ⬈ and upload to SatNOGS open source network (the only ground station in India).

2018   **3D Game Engine ⬈**.
Game engine from scratch using Java and OpenGL.

2018   **Improving Human-Computer Interaction with Machine Emotion Intelligence using NAO Robot (Bachelor's thesis) ⬈**.
Trained neural network to recognize human emotions from multimodal input (spoken text, facial expressions and voice tone).

2017   **Real-time video stabilization for Unmanned Aerial Vehicles ⬈**, *Smart India Hackathon 2017*.
Led team of 5 to create video stabilization software with tight performance constraints. Work handed over to Ministry of Defence, India.

Workshops

2017   **Maharashtra Institute of Technology, Pune**, *Workshop on computer forensics*.
Taught and demonstrated file carving (data recovery technique). Audience size ~50.

2016   **Maharashtra Institute of Technology, Pune**, *Workshop on game engines*.
Explored inner workings of Unreal Engine 4 in interactive sessions. Audience size ~30.

Service & leadership

Summer 2022   **Computer Science Graduate Society, McGill University ⬈**, *VP Academic*.
Responsible for inviting and arranging seminars for graduate students, given by industry/academic leaders.

2022   **SIGGRAPH 2022 ⬈**, *Student Volunteer*.
Selected for ACM SIGGRAPH's (Association of Computing Machinery's Special Interest Group on Computer Graphics and Interactive Techniques) in-person student volunteer program, Vancouver.

2019   **Raytracing in One Weekend ⬈**, *Contributor*.
Significantly improved Peter Shirley's Raytracing in One Weekend book series. Acknowledged by editors.

2016-2018   **Maharashtra Institute of Technology ⬈**, *Lead Event Organizer*.
Organized annual college festival "Aarohan" with average footfall of 40,000+ people. Proposed, obtained sponsorship and organized e-sports events (2017,2018) with participation from all over India.

Skills

Languages	Python 6/10), C++(4/10), Java(6/10)
Libraries	OpenGL, Numpy, Scikit-learn
Math	Matrix algorithms, Linear algebra, Probability, Statistics
Communication	English (Proficient), Hindi (Proficient), Marathi (Proficient), French (Beginner, A1 level)