Shivam Pandey

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Work Experience

Viga Entertainment Technology   *Dec 2021 - Feb 2022*

Graphics Programming Engineer Intern

- Developed full body motion capture pipeline and 3D facial reconstruction pipeline.
- Implemented state of the art motion capture system to capture detailed human motion including muscle deformation.
- Applied a neural network based pipeline using TensorFlow to extract key-points from a series of frames.
- Utilized optimization methods to fit statistical human body models to extracted points to capture fine details.
- Implemented a pipeline to construct detailed 3D model of human faces from stereo images.

Smerkato   *Sept 2021 - Oct 2021*

Product Development Intern

- Developed the seller-side app for a B2B e-commerce company.
- Used Flutter to develop application for android and IOS devices using Firebase as the backend.
- Application aimed to facilitate onboarding of sellers, listing products, tracking orders and delivering insights.
- Integrated Firebase (Authentication, Firestore and Storage), Google Maps and Geolocator APIs into the app.

Projects

Evolutionary Algorithm based Self Learning AI   *Jan 2021 - April 2021*

Term Project for Evolutionary Algoriths course

- Employed Evolutionary Algorithms for training AI-controlled teams to play in 3-a-side football matches.
- Implemented a feed-forward neural network in C and used it to model the AI's response to the match situation.
- Used Genetic Algorithm to train the Neural-Network by competing against other AI-controlled teams for 100 generations.
- Players reached 85 percent of the maximum possible fitness score while the average goals per match increased by four times.

Erosion Simulation for Procedural Terrain Generation   *Jan 2021 - June 2021*

Hobby Project

- Simulated the effect of water and heat on the landscape to generate realistic-looking terrain.
- Implemented a research paper on real-time fluid simulation to replicate the motion of water on Earth's surface.
- Employed GPU based parallelization of the algorithm for processing the simulation at interactive frame rates.
- Implemented mesh and texture generation algorithms in C to generate a 3D visualisation of the simulation result.
- Simulation results successfully reproduced real-life features such as mountain ridges, river valleys, and flood plains.

VR Application for Mental Health Improvement   *Jan 2021 - Apr 2021*

Term Project for Work-System Design Course

- Created a relaxing Virtual Reality environment to improve the mental health of the user
- Developed a Virtual Reality environment of a forest scene using Unity Engine to reduce the user's stress and fatigue.
- Implemented Guided Meditation feature to allow the user to listen to a guide's voice and perform meditative exercises.
- Used C to script the behavior of the app, Blender to 3D model the scene and Adobe Illustrator to create textures.

Ricksy Run   *Dec 2019 - Feb 2020*

2D platformer video game for Android Devices

- Developed an Android Game using Unity Engine and deployed it on the Google Play Store, gaining 15000+ downloads.
- Used Google Firebase Authentication and Realtime Database APIs to implement a global leaderboard feature.
- Programmed game behaviour using C, and integrated Google Ads using Admob API for revenue generation.

Skills and Expertise

Programming Languages and Libraries	C++	C	Python	OpenMP	CUDA	Scikit-Learn	TensorFlow	OpenGL
Softwares	Unity Engine	Blender	Adobe Photoshop	Adobe Illustrator	CPlex	Matlab

Coursework Information

Computer Science	Design and Analysis of Algorithms	Algorithms Lab	Genetic Algorithms |Information Systems
Mathematics	Probability and Statistics	Linear Algebra	Operations Research I |Operations Research II

Competitions

Inter IIT Tech Meet 2022   *March 2022*

BLUE YONDER'S NEXT-GEN OPTIMIZED DELIVERY ECOSYSTEM

- Fill this up

IIT Kharagpur Inter-Hall Data Science   *March 2022*

TIME SERIES DEMAND PREDICTION

- Fill this

Kharagpur Data Science Hackathon   *March 2021*

REVENUE PREDICTION

- Developed Machine Learning model to predict future profits for an online E-Commerce company based on revenue data.
- Performed exploratory data analysis and feature engineering on training data consisting of 7000 data points and 15 features.
- Achieved 95% accuracy on validation set by utilizing an ensemble of SVM and Decision Tree Regressors.

Education

Indian Institute of Technology, Kharagpur   *Jul 2019 - Apr 2023*

B.TECH. IN INDUSTRIAL AND SYSTEMS ENGINEERING   *9.08 / 10 CGPA*

Academic Heights Public School   *May 2017 - May 2019*

SENIOR SCHOOL CERTIFICATE EXAMINATION, CBSE   *95.2%*

G.N. National Public School   *March 2015 - Apr 2017*

SECONDARY SCHOOL EXAMINATION, CBSE   *10 / 10 CGPA*

Positions of Responsibility

Head of Research and Development   *Jan 2021 - July 2022*

COMPUTER GRAPHICS SOCIETY

- Headed the Research and Development team of the Computer Graphics and Game Development Society of IIT Kharagpur.
- Contributed to and managed projects on various topics such as Simulations, Computer Vision and Game Development.
- Collaborated with Technology Students Gymkhana to conduct Open-IIT Game and Graphics Development Workshop.
- Contributed towards areas such as Development of Games, Youtube Video production, and Recruitment of Junior members.

Senior Reporter   *August 2019 - July 2021*

AWAAZ, IIT KHARAGPUR

- Part of a team of reporters working towards bringing news and information about the institute to the student fraternity.
- Organised an annual event, "Panch Parmeshwar" during Spring Fest with a footfall of almost 300 people.
- Ensured proper coverage of campus issues concerning student welfare, such as those relating to mess and fees.
- As a part of the design team, created Infographics and Posters using Adobe Photoshop and Illustrator.