Shashikant Yadav

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Shashikant-Yadav

Academic Qualifications

Year	Degree	Institute	CPI/%
2021 - 2025	B.Tech	Indian Institute of Technology Kanpur	7.1/10
2021	Grade XII (CBSE)	Prince Uch Madhyamik Vidyalaya, Sikar	92.6%
2019	Grade X (CBSE)	Oasis Sainik School, Kalibanga	89.4%

Patents

- High Actuation Frequency Shape Memory Alloy Based Rotary Actuator *(Indian Patent : Draft)* 2024
- Efficient Container Weighing and Packaging System for Retail *(Indian Patent : Draft)* 2024

Professional Experience

Full Stack Game Developer | Vizuara, Cambridge *Feb'23 - Jul'23*

- Spearheaded the **development of interactive solutions**, providing students with platform to visualize concepts from their textbooks
- Utilized unity game engine and C# conducted performance assessments and optimizations, resulting in a **20% reduction** in load times
- Created high-end game models for enhanced visuals and **optimized user experience**, enhancing overall quality of teaching processes
- Designed **30+** web-based games for children, incorporated graphics, and delivered an exceptional learning experience to the students

Research Experience

Size Optimization of SMA Based Rotary Actuator | *Mentor: Prof. Bishakh Bhattacharya* *May'23 - Jul'23*

Objective	• Design and development of a **miniaturized rotary actuation system** without compromising outputs in existing system
Approach	• Performed experimental study to determine **correlation of actuation force** of SMA coil with respect to its length/pitch • Developed a **new design framework** by critically analyzing and identifying the areas of improvements in existing system
Result	• **Reduced size by 82.7%** by fabricating compact SMA-powered cam follower mechanism using Addictive manufacturing • Proposed product serves as **better alternative to conventional actuation system** and aims to improve **cost-benefit ratio**

High Frequency Rotary Actuator with Integrated Cooling System | *Undergraduate Project* *Aug'23 - Nov'23*

Objective	• Investigated different cooling methods to **improve actuation cycle efficiency** of SMA based rotary actuator
Approach	• Utilized critical heat flux equations from literature to develop a preliminary model for coil-based cooling mechanisms • Developed a **tailored governing equation** for SMA coil-based cooling through iterative experiments and data collection
Result	• Devised and implemented a novel cooling approach for SMA-based systems, showcasing **8x faster** cooling cycle

Key Projects

Marketing Research | Course project | *Mentor: Prof. Amit Shukla* *May'23 - Jul'23*

Box Homes	• Prepared **success metrics** to help improve processes and scrutinized the impact of **KPI** deviation on the overall function • **Increased sales KPI by 4.57%** by improvement in feedback handling, customer services, and social media presence
Accor	• Researched **digital marketing strategy** in Hospitality Industry by performing **STP & SWOT** analysis on **8+ Hotel groups** • Studied **market value** at each point in the customer journey to **increase the profit by 38%** by collaborating with OTAs
Deloitte	• Explored **GTM strategy of Deloitte** and performed **4P analysis** to gain better business **insights** and **diversification**

Gram Vikas : GIS Mapping based Simulation | *Ministry of Panchayati Raj | Inter IIT Tech Meet 12.0* *Dec'23*

Objective	• Employed **real-time drone and GIS data** to create a dynamic and **responsive simulation** of Kalonda village
Approach	• Conducted a comprehensive strategic study to **analyze cost implications** for various construction projects within game • Developed **dynamic wallet system** within simulation, mirroring village's annual budget fluctuations based on population
Results	• Implemented the entire solution at the rural level, directly engaging with Gram Panchayats and local communities

Graphics and Shaders: 3D Renderer | *Game Development Club* *Apr'23 - Jul'23*

Renderer	• Engineered a 3D Renderer using C++ and **OpenGL API**, leveraging advanced rendering for **visualization of vertex data**
Pipeline	• Developed components like GUI pipeline, **multi-pass framebuffer**, and shaders, optimizing performance and visuals • Integrated libraries, including ASSIMP for **model loading**, GLM for mathematical **operations**, and ImGui for **graphical UI**
Widgets	• Designed **UI Widgets**, enabling users to seamlessly create, load, and manipulate scenes properties in real-time

Weigh Forward | Course project | *Mentor: Prof. Nachiketa Tiwari* *May'23 - Jul'23*

Analysis	• Conducted targeted research in the retail industry, to i**dentify challenges** in weighing and packaging loose groceries • **Formulated business plan**, encompassing market size, pricing strategies, and operational guidelines for product launch
Product	• Designed and **prototyped the dispenser**, ensuring a solution to streamline processes and enhance customer experience • Executed **user persona surveys** to identify pain points in retail industry, specifically focusing on supermarkets and malls

Slope Delivery Bot | Course Project | *Mentor: Prof. Mohit Law* *Jan'23 - May'23*

Objective	• Engineered a **sustainable bot** utilizing recycled materials to **deliver packages** on inclined and rough surfaces
Mechanism	• Optimized gear ratios and configurations to **maximize bot's power transmission**, resulting in improved overall efficiency • Integrated Arduino-based system for **movement control**, leveraging sensors, and seamless communication interface • Fabricated and assembled bot using various fabrication techniques including milling, 3D printing, and CNC machining
Result	• Conducted tests demonstrating bot's impressive climbing capabilities, **achieving angles of upto** 60° with a **1 N.m** motor

Volatility Forecasting in India | Course Project | *Applied Data Science Lab* *May'23 - Jul'23*

Objective	• Develop and Deploy a **GARCH Time Series Model-Based Web API** for Accurate Asset Volatility Prediction
Model	• Employed classes to efficiently transform and load data into a SQL database, ensuring seamless data integration • Validated **GARCH model** predictive capabilities through backtesting and evaluation against actual market volatility
API	• Integrated **HTTP requests** to acquire and preprocess stock market data from alphaventage, encompassing real-time data • Deployed **web API** on server, achieving support for concurrent user access and **enabling real-time volatility predictions**

RL Based Optimization Of HVAC Systems | *Association of Mechanical Engineers* *Jan'23 - Mar'23*

- Conducted an literature review on Reinforcement Learning-based formulations in HVAC, synthesizing and analyzing latest research
- Computed optimal state for HVAC systems by leveraging **computational methods** and considering multiple factors
- Evaluated a optimized model that reduces energy consumption and CO2 emissions, validated through systems' data

EcoHex | Takneek'23 | *Inter-Hall Tech Competitions* *Apr'23*

- Developed an **AI-based board game** for Android devices using Unity, featuring optimized mechanics and intuitive controls
- Implemented **MCTS** and **Minimax** algorithm with alpha-beta pruning to reduce the number of explorations made in the state tree
- Designed and developed the user interface for game, ensuring visually appealing and intuitive player experience and engagement

Ignition Evade | *Bronze Medal | India Game Developer Conference | Inter IIT Tech Meet 12.0* *Dec'23*

- Designed an narrative game using Unity, integrating cutting-edge **Generative AI** technology for an enhanced gaming experience
- Remodeled AI for a optimized art workflow, elevating visuals and **reduction in processing time by 60%**, thus improving team's efficiency
- Implemented and debugged player mechanics like shaders, dash and UI controls for the game using C# and shader graph
- Received Bronze medal and **special invite from IGDC**, acknowledging excellence and inviting it for a national-level presentation

Technical Skills

Languages: C, C++, C#, Python, R, MATLAB
Softwares: Solidworks, Ansys, Adobe Suite, Unity, Tableau, Power BI
Libraries: Scikit-learn, TensorFlow, PyTorch, Keras
Soft Skills: Leadership, Team Work, Communication

Relevant Courses

** Online # Ongoing*

Marketing Management	Applied Data Science Lab*	Heat and Mass Transfer#	Data Analysis with R*
New Product Development	Human Computer Interaction#	Game Theory*	Fluid Mechanics
Manufacturing Processes	Nature & Properties of Materials	Thermodynamics	Mechanics of Solids
Engineering Design and Graphics	Theory of Machines	Supervised Machine Learning*	Design For VR/AR#

Positions of Responsibility

Coordinator, Game Development Club | *Science and Technology Council, IIT Kanpur* *Apr'23 - Present*

Leadership	• Spearheaded a **3-tier team** of **30+** members to organize club events, like workshops, sessions, for campus community • Managed a budget of **40K** to conduct seminars, projects, competitions catering to gamedev enthusiasts among students • Coordinated with Core Team to organize Semester Projects, for **100+ students**, for topics like Anti-Cheat and Smart AI
Initiatives	• Conducted **interactive workshop** on strategy-game design, attended by diverse audience of **50+** from campus community • Started **"Just Insights"** social media campaign, reaching an audience of **2.5K+** to promote gamedev within the institution
Impact	• Received **funding of INR 1 lakh** from **Vizuara** on **industrial collaboration** focused on developing games for school students • Boosted active contributors by **1.6** times, cultivating a more dynamic and collaborative atmosphere within the club

Secretary, Design and animation club | *Media and Cultural Council, IIT Kanpur* *Jun'22 - Apr'23*

Team Work	• Collaborated with team of designers and animators to create engaging creative visual content for **10+** major events
Initiatives	• Conducted **workshops**, empowering **90+** students to enhance their skills in **graphic design** through executing their ideas • Participated in competitions like IFP, FMC weekend and Inter-IIT, showcasing talent in various artistic disciplines
Impact	• Demonstrated remarkable talent by **winning a medal in Inter-IIT Cult Meet 5.0** and being **nominated in IFP Season 12** • Received acclaim for workshops, with **90%** of attendees, reporting competence and confidence in their creative abilities

Senior Member, Team AUV | *Science and Technology Council, IIT Kanpur* *Apr'23 - Present*

Team Work	• Collaborated with **multidisciplinary team** on different phases, to develop and optimize a **compact design** for the Anahita • Conducted freshers orientation for **1200+** freshers at SnT Pavilion, delivering a presentation showcasing our work
Initiatives	• Optimized camera casing for **Anahita** (AUV), strategically repositioning it to reduce turbulence and enhance field of view • Proposed new design for torpedo, reducing turbulence and improving accuracy, thereby enhancing overall performance

Extra-Curricular Activities

Design	• **Bronze Medal** at Inter IIT Cult Meet 5.0 in **Design Marathon** under digital art category conducted by IIT Madras • Secured **2nd position** in **Mascot Design** at Galaxy'23 (Inter-hall competition) organized by MnC Council	*2023* *2023*
Technical	• **Bronze Medal** at Inter IIT Tech Meet 12.0 in **GameDev Challenge** by India Game Developer Conference • Secured **1st position** in **Board Game AI** Problem Statement at Takneek'23 organized by SnT Council, IIT Kanpur • Ranked in the **top 1%** nationwide among students in the **Indian Olympiad Qualifier in Physics**	*2023* *2021*
Case study	• Received **letter of recommendation** as recognition of performance during **Business Analyst Program**, Finlatics • Awarded with **Merit Prize** for completing cases with unique approach at **StrategyCo.Global's Consulting course**	*2023* *2022*
Sports	• Member of Institute athletics team & won **3rd position** in Javelin Throw at Inter-Hall Sports competition	*2019*