ADITYA DUTT

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EDUCATION

University of Illinois at Urbana-Champaign *Expected Graduation: May 2023*
Bachelor of Science in Engineering Mechanics GPA: 3.99/4.00
Minors: Physics, Computer Science
Honors: IL Engineering Achievement Scholar | James Scholar | Tau Beta Pi Outstanding Junior Award | Dean's List
Relevant Coursework:

- Dynamics, Control Systems (Simulink), Intro to Robotics, Data Structures (C++), Game Development (Unreal Engine)
- Computational Mechanics (Matlab), Computational Physics (C++ & Python), Fluid Mechanics, Continuum Mechanics

RESEARCH EXPERIENCE

Immersive-Learning VR Lab Champaign, IL
Virtual Reality Researcher (C# + Unity Engine) *Aug 2021 – Dec 2021*

- Responsible for developing and testing the software of the VR applications in the lab using Unity
- Creating and developing a unique stand-alone game related to electromagnetism concepts
- Collaborating with other lab members to produce an immersive experience for other engineering students

Independent Study Champaign, IL
Undergraduate Research Assistant (Python + TensorFlow) *Jan 2021 - Aug 2021*

- Researching properties of grain microstructures under Prof. Nikhil Chandra Admal
- Solving numerical PDE's using Machine Learning algorithms in TensorFlow
- Wrote a comprehensive, technical report to explain neural networks and grain boundaries

PROJECTS

Reaction Wheel Pendulum Controls Project (Matlab + Simulink) *Apr 2022- May 2022*

- Performed Dynamic and Control system analysis on a Reaction Wheel Pendulum
- Implemented PI control, velocity estimation and friction compensation on the model
- Designed two-state and three-state feedback controllers to stabilize the wheel
- Developed an observer design to approximate the state and replace the full state feedback controller

Machine Learning Project (Python) *Mar 2022 - Apr 2022*

- Designed a Hopfield Network as an Ising Model to memorize large sets of images
- Developed an RBM to perform unsupervised learning using gradient descent
- Trained the RBM on the MNIST dataset to learn any given probability distributions

Robot Manipulator Project (Python) *Aug 2021 - Dec 2021*

- Coded and manipulated a robot arm to perform a pick and place task
- Developed the forward and inverse kinematics of the robot using Webots and Python
- Used camera sensors to identify objects to perform the task and manipulate the end-effector

LEADERSHIP

Chai Town South Asian Acapella Group Champaign, IL
Vice President *Aug 2019 - Present*

- Ensuring smooth flow of operations of the group along with the members of the executive board
- Coordinating and handling all events and responsibilities pertaining to the group
- Recording and performing unique arrangements of Western and South Asian music

Center for Academic Resources in Engineering (CARE) Champaign, IL
Tutor *Jan 2021 - Present*

- Provide academic assistance for underclassmen in introductory engineering courses
- Conduct exam review sessions during exam periods to help prepare students

SKILLS

Programming: Python, MATLAB, C++, Git, ROS, TensorFlow, Unity, C#, Lua, Unreal
CAD/CAM: Fusion 360, Creo Parametric, NX11.0, CURA, GD&T, FDM, Apriori
Languages: English, Kannada, Hindi, Basic German