Bibek Raj Joshi

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Education

Master of Science in Computer Science (GPA: 3.83) Aug. 2022 – July 2024
Wright State University *Dayton, OH*
Relevant Coursework: Intro Machine Learning, Machine Learning, TrustWorthy Machine Learning, Cloud Computing, Distributed Computing, Algorithm Analysis and Design

Bachelor of Science in Computing, Honours (GPA: 3.53) Oct. 2013 – Nov. 2017
London Metropolitan University *London, UK*

Experience

Software Development Intern May 2024 – Present
Wright State University *Dayton, OH*
- Led a team of student software development interns, coordinating tasks and projects.
- Created user check-in/Pomodoro functionalities for the WSU's Discord Server.

Graduate Research Assistant Aug. 2023 – Apr. 2024
Wright State University *Dayton, OH*
- Developed a novel methodology to enhance the robustness of Graph Neural Networks against adversarial attacks.
- Conducted comprehensive ablation studies to assess the impact of adversarial attacks on graph data, revealing insights into adversarial vulnerability.

Graduate Teaching Assistant Jan. 2023 – Aug. 2023
Wright State University *Dayton, OH*
- Instructed CS 1150: Intro to Computer Science and CS 7140: Advanced Software Engineering, received positive student feedback.
- Coordinated with professors to design curriculum materials and graded assignments.
- Served as a Product Owner in CS 7140 projects, leading to improved team dynamics and project outcomes.

Projects

Cloud AWS | *Python, Django, Singularity, SLURM, Bash* Aug. 2022 – Dec. 2022
- Developed a web application to enable compute tasks across two HPC clusters (WSU's Fry and OSC's Owens) and an AWS instance, demonstrating cross-functional capabilities through Bash scripting.

Heart Disease Prediction | *Python, Numpy, Pandas, PyTorch* Aug. 2022 – Dec. 2022
- Performed a study on the application of supervised learning techniques (SVM, Logistic Regression, Neural Networks) for predicting heart disease.
- Utilized Matplotlib and Seaborn for data visualization and enhanced model interpretability establishing Deep Neural Networks as the most viable method with accuracy and F1 Scores at above 98 percent.

Parallel PGD | *Python, Numpy, PyTorch* Aug. 2023 – Dec. 2023
- Developed a new approach to perform Projected Gradient Descent with Parallelization while introducing multiple epsilons.
- Conducted an ablation study to analyze the effects of Projected Gradient Descent on MNIST dataset.
- Enhanced attack performance by significantly reducing runtime (from 8.44 minutes to 4.12 minutes) and maintaining test case consistency, with an accuracy reduction from 0.82 to 0.69.

POSE Estimation | *Python, Yolov5, Yolov8, Git* Aug. 2023 – Dec. 2023
- Performed object detection and pose estimation using Custom CNN and pre-built State of the Art ML models.
- Implemented Yolov5 and Yolov8 on the custom spacecraft dataset achieving an F1 score of 0.78 with Yolov8 as opposed to 0.65 with CNN.

Technical Skills

Languages: Python, Bash, Java, C#, SQL, Postgres, JavaScript, HTML/CSS
Frameworks: Django, React, Node.js, Flask, JUnit, WordPress, BootStrap
Developer Tools: Linux, Git, SLURM, Singularity, VS Code, Visual Studio, PyCharm, IntelliJ, AWS
Libraries: Pandas, NumPy, Scikit-learn, Matplotlib, PyTorch, PyTorch Geometric, Tensorflow