RONAST SUBEDI

(850) 631-8140 | subedironast.com.np | rs22ce@fsu.edu | sronast | sronast | Google Scholar

EDUCATION

Ph.D. in Computer Science *Jan 2023 – Present*
Florida State University Tallahassee, Florida

M.S. in Computer Science *Jan 2023 – May 2025*
Florida State University Tallahassee, Florida
Courses: Advanced Algorithms, Advanced Data Mining, Computer Vision, Data Mining, Data Science, Weakly Supervised Machine Learning

Bachelor's in Computer Engineering *Nov 2016 – April 2021*
Institute of Engineering, Pulchowk Campus, Tribhuvan University Lalitpur, Nepal
Courses: Data Structures and Algorithms, Software Engineering, Object-Oriented Analysis, Database, Probability and Statistics, Artificial Intelligence

EXPERIENCE

Graduate Research Assistant *Jan 2023 – Present*
Florida State University Tallahassee, Florida

- Designing Active Learning-based strategies to select and clean labels of informative samples from noisy 3D molecular datasets in order to reduce cleaning costs
- Developing explainable AI solutions to predict suicidal intents among individuals
- Developed an Active Learning (AL) pipeline to select informative data subsets from 3D molecular datasets, resulting in over a 7% performance improvement compared to baseline AL methods (published [1])
- Leveraged domain adaptation techniques to develop CNN models for predicting adherence to cognitive training programs, resulting in over 15% improvement in accuracy, recall, and F1 scores over baseline methods (published [2])

Machine Learning Engineer (Worked remotely from Nepal) *April 2021 – Dec 2022*
Redev Technology Ltd. London, UK

- Developed end-to-end ML pipelines for object detection/classification on edge devices, improving data flow, training, and deployment. Evaluated SOTA models (YOLOv5, Mask-RCNN, Faster-RCNN), selecting YOLOv5 for a 5% mAP gain in person, vehicle, and fire detection
- Contributed to the design and development of data-driven Active Learning pipeline for data annotation, integrating *Coreset* and *Learning Loss* algorithms, reducing data annotation costs by up to 30%

Computer Vision Researcher *Apr 2021 – Dec 2022*
NAAMII Lalitpur, Nepal

- Developed a self-supervised multi-task method for medical image segmentation, improving the IoU metric by up to 13% compared to standard baselines like UNet and U2Net (published 4)
- Achieved first place in the EndoVis FetReg challenge at MICCAI 2021 (published 3, 5)
- Implemented privacy-preserving federated learning framework for cross-domain surgical image segmentation (published 6)

Machine Learning Intern *May 2019 – Nov 2019*
UBL R&D Center Lalitpur, Nepal

- Built a full-stack app for image annotation with role-based access control, boosting workflow efficiency by 30%

PUBLICATIONS

1. Empowering Active Learning for 3D Molecular Graphs with Geometric Graph Isomorphism
R. Subedi[*], Lu Wei[*], Wenhan Gao[*], Shayok Chakraborty[+], Yi Liu[+]
In *Neural Information Processing Systems* (**NeurIPS**), 2024 (*equal contribution, [+]corresponding author)

2. Predicting Adherence to Computer-Based Cognitive Training Programs Among Older Adults: Study of Domain Adaptation and Deep Learning
A. Singh, ..., **R. Subedi**, and others
In *JMIR Aging*, 2024

3. Placental vessel segmentation and registration in fetoscopy: Literature review and MICCAI FetReg2021 challenge findings
S Bano, ..., **R. Subedi**, and others
In *Medical Image Analysis Journal*, 2024

4. Histogram of Oriented Gradients Meet Deep Learning: A Novel Multi-task Deep Network for Medical Image Semantic Segmentation
   B. Bhattarai, **R. Subedi***, R. R. Gaire*, E. Vazquez, and D. Stoyanov
   In *Medical Image Analysis Journal*, 2023 (*equal contribution)

5. Why is the winner the best?
   M Eisenmann, ..., **R. Subedi**, and others
   In *Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023

6. A Client-server Deep Federated Learning for Cross-domain Surgical Image Segmentation
   R. Subedi, R. R. Gaire, B. Bhattarai, and D. Stoyanov
   In *DEMI MICCAI*, 2023

7. GAN-Based Two-Step Pipeline For Real-World Image Super-Resolution
   R. R. Gaire*, **R. Subedi***, A. Sharma, S. Subedi, S. K. Ghimire, S. Shakya
   In *ICT with Intelligent Applications: Proceedings of ICTIS 2021, Volume 1, 763-772*, 2021 (*equal contribution)

SKILLS

Programming Languages	Python, C/C++, JavaScript, SQL
ML Frameworks	PyTorch, TensorFlow, Keras, scikit-learn, OpenCV, Pandas, NumPy, SciPy, Matplotlib
Tools	Bash, Git, Docker, AWS, GCP, LaTeX

ACADEMIC HONORS AND ACHIEVEMENTS

- **Scholarship**, Full Financial support for Ph.D. in Computer Science, FSU
- **Award**, Graduate Research Assistant Award, FSU
- **Scholarship**, Travel Grant to attend NeurIPS 2024, FSU
- **Award**, First place in the EndoVis Fetreg challenge at MICCAI 2021
- **Scholarship**, Full Financial support for PRAIRIE MIAI Artificial Intelligence Summer School, 2021
- **Scholarship**, Earned merit-based stipend for ranking in the top 24 of the class, IOE Pulchowk Campus, TU