Naga Raju, Gudhe

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Overview

I am a researcher specializing in AI and deep learning for healthcare, with expertise in cancer diagnostics and genomics, multi-modal data integration, and graph-based learning. Developed innovative frameworks such as GenoGraph, focusing on clinically impactful solutions through advanced machine learning techniques.

Experience

- **University of Eastern Finland** *February 2021 - Present*
  Doctoral researcher Kuopio, Finland
  - Conducted advanced research in medical image analysis using AI, focusing on breast cancer risk and patient outcomes.
  - Developed deep learning models utilizing multiple modalities of data, including imaging (mammograms, histopathology), molecular (genetic variants), and clinical data for breast cancer risk prevention and early detection.
- **Software Competence Center Hagenberg GmbH** *January 2019 - August 2019*
  Computer vision researcher Hagenberg, Austria
  - Designed and implemented computer vision algorithms for industrial applications, contributing to AI-driven solutions.
  - Used deep learning for object detection and image classification in healthcare projects.
- **University of Passau** *January 2017 - June 2017*
  Student research assistant Passau, Germany
  - Assisted in research focused on applying machine learning to computer vision and natural language processing applications.
- **Kesava Reddy Institutions, Andhra pradesh** *July 2012 - June 2015*
  High school teacher India
  - Taught Physics to students from grades 6 to 10, focusing on both conceptual understanding and problem-solving skills.
  - Prepared students for national-level competitive exams, helping them develop the necessary knowledge and exam strategies.
  - Actively engaged in organizing extracurricular activities aimed at enhancing students' critical thinking and scientific curiosity.

Education

- **University of Passau** *February 2017 - October 2018*
  MSc computer science Passau, Germany
- **Godavari institute of Engineering and Technology** *September 2008 - May 2012*
  B.Tech Information Technology Andhra pradesh, India

Publications

C=Conference, J=Journal, S=In Submission, T=Thesis

[J.1] **Naga Raju Gudhe**, et al., (2024). **A Multi-view deep evidential learning approach for mammogram density classification**. *IEEE Access*, vol. 12, pp. 67889-67909, 2024.

[J.2] **Naga Raju Gudhe**, et al., (2023). **Nuclei instance segmentation from histopathology images using Bayesian dropout based deep learning**. *BMC Medical Imaging*

[J.3] **Naga Raju Gudhe**, et al., (2022). **Area-based breast percentage density estimation in mammograms using weight-adaptive multitask learning**. *Scientific reports*

[J.4] **Naga Raju Gudhe**, et al., (2021). **Multi-level dilated residual network for biomedical image segmentation**. *Scientific reports*

[C.1] **Naga Raju Gudhe**, et al., (2023). **Predicting cell type counts in whole slide histology images using evidential multi-task learning**. In *Medical Imaging 2023: Digital and Computational Pathology*.

[S.1] **Naga Raju Gudhe**, et al., (2025)). **GenoGraph: an interpretable graph representation learning framework for identifying genetic variants associated with breast cancer**. Manuscript submitted for publication in *Nature communications*.

[T.1] **Naga Raju Gudhe**(2024)). **Deep learning approches for breast cancer risk and patient outcomes**. Doctoral dissertation would be examined at University of Eastern Finland, January 2025.

Skills

- **Programming Languages:** Python, R
- **Web Technologies:** HTML, CSS, JavaScript, Django, Streamlit
- **Data Science & Machine Learning:** scikit-learn, PyTorch, PyTorch Geometric
- **DevOps & Version Control:** Docker, Kubernetes, Git, GitHub
- **Specialized Area:** Medical Image Analysis, Breast Cancer Detection, Nuclei Segmentation, Pathology Image Processing
- **Mathematical & Statistical Tools:** NumPy, SciPy, pandas, SPSS
- **Other Tools & Technologies:** OpenCV, DICOM, LaTeX
- **Research Skills:** Deep Learning Model Development, Multi-modal Learning, Medical Imaging Datasets, Scientific Writing, Research Collaboration, Presentation of Findings

Honors and Awards

- **Doctoral research Funding** *2022-2024*
  University of Eastern Finland
- **PhD Fund** *2022, 5000 Euros*
  North Savonia cultural fund
- **Doctoral dissertation Fund** *2024, 5000 Euros*
  Finland Cancer Society

Additional Information

Languages: Telugu (native speaker), Hindi (B1), English, German (A2), Finnish (A1)

Interests: Sports (badminton, tennis), Hiking and nature walk.

References

1. **Professor Minna Kaikkonen-Määttä**
   University of Eastern Finland
   A.I.Virtanen Institute for Molecular Sciences
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2. **Professor Arto Mannermaa**
   University of Eastern Finland
   School of Medicine, Institute of Clinical Medicine, Pathology and Forensic Medicine
   Head, Multidisciplinary Cancer research community RC Cancer, UEF
   Director Biobank of Eastern Finland
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3. **Dr. Mazen Sudah**
   Docent, Sr. Radiologist
   Department of Radiology, Kuopio University Hospital
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