Narayan Kandel

Ph.D. Candidate in Computer Science | Researcher | Software Engineer

github.com/nKandel | linkedin.com/in/narayankandel

About

I am a Ph.D. candidate in Computer Science at Clemson University, working at the intersection of computer graphics, machine learning, and physically based rendering. My research focuses on implicit neural representations for modeling complex surface appearance, particularly diffractive materials.

Before my doctoral studies, I worked in software engineering, developing web applications, data-driven systems, and backend platforms.

Research Interests

Machine Learning · Computer Graphics · Neural Rendering · Physically Based Rendering · Implicit Neural Representations · High-Performance Computing

Education

Clemson University Clemson, SC
Ph.D. in Computer Science, expected 2026; M.S. in Computer Science, 2025

Tribhuvan University, Pulchowk Campus Lalitpur, Nepal
M.S. in Computer Systems & Knowledge Engineering, 2016; B.E. in Computer Engineering, 2013

Experience

Graduate Research Assistant 2021–Present
Clemson University *Clemson, SC*

Conduct research in machine learning, neural representations, and physically based appearance modeling.

Graduate Teaching Assistant 2024–Present
Clemson University *Clemson, SC*

Teach and support students across computer graphics, software engineering, programming, and related computing courses.

Machine Learning Intern 2023
LexisNexis Risk Solutions *Clemson, SC*

Conducted research on scalable distributed neural-network training using TensorFlow, Keras, and HPCC Systems.

Independent Software Engineer 2016–2020
Freelance *Remote*

Delivered software engineering projects for multiple clients, completing more than 5,500 hours of freelance work.

Founding Software Engineer 2014–2016
nLocate Pvt. Ltd. *Kathmandu, Nepal*

Developed backend, data-processing, and web systems for location-based search and related products.

Associate Software Engineer 2013–2014
Deerwalk Services Pvt. Ltd. *Kathmandu, Nepal*

Contributed to healthcare analytics software and backend systems.

Selected Publications

- **Kandel, N.**, Dhillon, D. S. *GratNet: A Photorealistic Neural Shader for Diffractive Surfaces*. CEIG, 2026.
- **Kandel, N.**, Xu, L., Dev, R. *Improving Performance and Accuracy of Distributed Neural Networks with Generalized Neural Network*. Future of Information and Communication Conference, 2025.
- **Kandel, N.**, Lambert, M. *Analyzing GPU Performance in Deep Learning: Insights from Large Image Processing*. Computing Conference, 2025.
- **Kandel, N.**, Joshi, S. R. *A Map-Reduce Model to Find Longest Common Subsequence using Non-alignment Based Approach*. IOE Graduate Conference, 2016.

Selected Project

GratNet: Neural Representation for Diffractive Surfaces 2022–Present

Developed a lightweight implicit neural representation for physically based rendering of diffractive surfaces. The approach combines deep learning and wave-optics-based modeling while reducing memory requirements by up to 50× compared with lookup-table representations.

Technologies: Python, PyTorch, C++, MATLAB, GPU Computing

Technical Skills

Graphics & ML	Neural Rendering, Physically Based Rendering, Deep Learning, Machine Learning, Wave Optics
Programming	Python, C++, MATLAB, Java, JavaScript, SQL
Frameworks	PyTorch, TensorFlow, Keras, Django
Computing & Data	GPU Computing, Apache Spark, PostgreSQL, BigQuery, Slurm, Git

Selected Honors

- Outstanding Graduate Teaching Assistant, School of Computing, Clemson University (2025).
- Nepal Bidya Bhusan Padak (Class B), Presidential Academic Honor awarded for ranking first in the M.S. Computer Systems & Knowledge Engineering program (2018).

Service & Leadership

CECAS Graduate Student Advisory Board, Clemson University 2022–Present

President (2024–2025), Secretary (2023–2024), and School of Computing representative.

ACM SIGGRAPH Student Volunteer 2023