

# Saiman Dahal

*Ph.D. student, Graduate Research Assistant, Washington State University*

📍 Pullman, WA, US    ✉ saiman.dahal@wsu.edu    ☎ 509 3388 907    🔗 <https://saimandahal.github.io>

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## Education

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### Ph.D. in Computer Science

Jan 2024 – present

*Washington State University*

- GPA: 3.9/4.0
- **Research:** Combinatorial ML applications, High-performance architectures
- Adviser: Prof. Ananth Kalyanaraman

**Pullman, WA, USA**

### B.E. in Computer Engineering

2017 – 2021

*Tribhuvan University*

- Percentage: 72%
- **Research:** AI/ML for time series analysis.

**Kathmandu, Nepal**

## Research Interest

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- Combinatorial machine learning applications.
- Hardware software co-design for model optimization and energy-efficient training.
- High-performance architectures for accelerating ML applications.

## Publications

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### HpT: Hybrid Acceleration of Spatio-Temporal Attention Model Training on Heterogeneous Manycore Architectures

Jan 2025

IEEE Transactions on Parallel and Distributed Systems (TPDS), Accepted, 2025.

Link: <https://ieeexplore.ieee.org/abstract/document/10820024>

## Experience

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### Graduate Research Assistant

Jan 2024 – present

*School of Electrical Engineering and Computer Science*

*Washington State University, WA, USA*

- Hybrid methodology with hardware-software co-design principles, achieving optimized performance and energy efficiency for ML models.
- Architecture with ReRAM and systolic arrays to accelerate ML workloads.
- Design space exploration to identify optimal configurations for deep learning workloads on custom high-performance architectures.
- Optimized models for genome sequences analysis, addressing unique challenges in biological sequence data.

### Graduate Teaching Assistant

Jan 2024 – May 2024

*School of Electrical Engineering and Computer Science*

*Washington State University, WA, USA*

## Computer Engineer

Ministry of Urban Development  
SinghaDurbar, Kathmandu, Nepal

Apr 2022 – Dec 2023

## Software Developer and Project Supervisor

Contentio Lab  
Kathmandu, Nepal

Jan 2022 - Dec 2023

Job Area: Core Programming, Project Manager, Database

## Junior Python Developer

Prayogshala Technologies  
Dharan, Nepal

Jan 2020 - Mar 2021

## Instructor

Hibiscus School  
Dharan, Nepal

Jan 2019 – Jan 2020

Job Area: Computer science

## Projects

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### HpT: Hybrid Acceleration of Spatio-Temporal Attention Model Training on Heterogeneous Manycore Architectures

[saiman/HpT](#) 

- HpT, a software-hardware co-design to accelerate the training of attention-based models for scientific applications.
- Programming language and tools used: Python, Pytorch, NeuroSIM, PEFT

### StockCoder: Stock price prediction using Transformer architecture

[saiman/StockCoder](#) 

- Stock closing price prediction using self-attention.
- Programming language used: Python

### Your Voice Your Website, Application of NLP in Web Applications.

- Use of Natural Language Processing to realize the voice command consisting HTML tags and attributes provided by user and process the command rendering a website.
- Programming language used: Python

### Influencer Node Maximization (INM): Centrality-based influence maximization approach in a network

[saiman/INM](#) 

- Implementation of influential maximization algorithm in the Amazon product network to determine the influential products in the graph.
- Programming language used: Python

## Technical Skills

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**Programming languages :** Python, C, C++, SQL, PHP, JS, CSS, Liquid

**Frameworks/ Libraries :** PyTorch, Scikit-learn, Matplotlib, Tkinter

**Tools/ Platforms :** NeuroSIM, gem5, WordPress, Shopify, LEMP, GitHub

**Specialized skills:** Transformer architecture, Spatio-temporal analysis, Layer-wise neural network training

## Professional Membership

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**Member:** Institute of Electrical and Electronics Engineers, Inc. (IEEE) Member (2024 - present).

**Secretary:** Nepali Student Association, Pullman, WA, USA (Aug 2024 - present).

**Secretary:** Technical Student Association Nepal, Dharan, Nepal (Jan 2018 - Feb 2019).