

Sankalpa Timilsina

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Research Interests

- My research interests include algorithms, mathematics, programming languages, computer networks.
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Education

2021-Present Masters in Computer Science

Tennessee Tech University, Cookeville, TN, USA

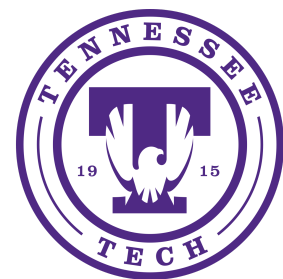
2016 Bachelors in Computer Engineering

Institute of Engineering, Pulchowk Campus, Tribhuvan University, Nepal

2012 Higher Secondary Education

Aroma Higher Secondary School, HSEB, Nepal

Work and Research Experience



Graduate Research Assistant

- Working on the Next Generation Internet Laboratory with focus on New Internet Architecture (Named Data Networking).

Tennessee Technological University

AUGUST 2021 - PRESENT

- Working on N-DISE project which aims to deploy and commission the first prototype production-ready Named Data Networking (NDN)-based petascale data distribution, caching, access and analysis system serving major science programs, with the Large Hadron Collider (LHC) high energy physics program as the leading target use case.



Outcode Software, Aananda Bhairab Marg

OCTOBER 2020 - JULY 2021

Lead Software Engineer

- Involved in devops activities including microservices based servers setup and maintenance
- Tech lead for full stack web development group handling responsibilities of maintaining team goals and execution



Insight Workshop, Aananda Bhairab Marg

NOVEMBER 2019 - OCTOBER 2020

SEPTEMBER 2018 - NOVEMBER 2019 (Remote, part-time)

<https://insightworkshop.io/>

Lead Software Engineer

- Core researcher on Adaptive question examinations much like that of GRE, GMAT.
- Rasch model for creating measurements from categorical data.
- Item Response Theory for the design, and scoring of tests, and questionnaires.
- GraphQL based APIs replacement for REST architecture in multi-server systems.



Eagle Vision IT, Jawalakhel

JANUARY 2017 - NOVEMBER 2019

<https://eaglevisionit.com>

Software Engineer

- Train interns on restful web services and SPAs (Single Page Applications).
- Built security and monitoring applications for company projects.
- Implemented fast searching and indexing libraries and databases with elasticsearch.
- Implemented and taught specialized fast-server architecture and deployment methods with graphql and caching.



Leapfrog Technology Inc., Charkhal Rd

OCTOBER 2016 - DECEMBER 2016

<https://www.lftechnology.com/>

Top 3% Intern

- Top 3 among more than 100 applicants.
- Object collision algorithm (Boundary collision detection) with two-dimensional objects graphics.
- WYSIWYG editor application for browser-based editing.
- Web page scaling and measurement.
- Responsive web pages.
- Web based slide-share and presentation application.



Yomari Pvt. Ltd., Manbhawan

MARCH 2016 - AUGUST 2016

<http://www.lisnepal.com.np/>

Top 20% Engineering Trainee

- Directly selected from my undergraduate program from the prestigious engineering college of Nepal (TU, IOE, Pulchowk) of 2069 Computer Engineering Batch.
- Collaborative discussion on *Stock Market Analysis and Prediction (Major BE project)*.
- Weekly reports via backlogs and sprints.
- Implement project versioning with *Mercurial*.
- Live presentation / defense.

Projects and Research

LevelUp

Training platform for Web Developers For Remote Work

This is a training platform for aspiring web freelancers who want to work remotely. The product trains the person on the fundamental Listening, Speaking, Writing and Reading capabilities which are themselves separated into a whole individual services within the project. It is a product that I'm involved in where I am designing the core Adaptive Multiple Choice questions algorithms. By far, I have been testing on the Item Response Theory (IRT) following a Rasch Model. The proficiency of an examinee and the difficulty level of a question are compared to select the most appropriate next question. At the same time, I am employing AWS transcribe for audio/video transcription of the exam for grading speaking score.

<http://leveluptech.io>

BG Job Finder

Top and most frequently used Job Finding Portal in Japan (Top 5% Platform JP)

A multilingual job finder portal actively used in Japan. This project embodies multi-server architecture where the API, the admin console and the frontend are separated to exhibit a separation of concerns. The servers communicate with each other internally via http.

<https://bgjobfinder.jp>

5 Spades

Swedish Association Sports News Website and Betting Information

An informational swedish site presenting information on bettings about active sports including reviews on the sporting events by experts. The site fetches popular sports data like Soccer, Basketball, etc. in real time as the matches happen from the renowned BetsApi. Interestingly, a separate server is written in python using multithreading for parallel data fetching.

<https://5spades.com>

Room To Home Portal for selling and buying properties, actively used in Japan (Top 10% Platform JP)

Japanese portal for actively posting and finding rooms and/or assets, properties in Japan. It is a platform for the sellers and buyers where the sellers can post their properties to rent or sell to a prospective buyer. The buyer can then apply for the job via the portal. The project maintains a multilingual platform with complex data structure for storing multiple dynamic data.

<https://roomtohome.jp>

Stock Market Analysis and Prediction

Prediction of Future Stock Market with ANN, Data Mining

An engine for analyzing and predicting Nepal stock market values supported by rich visualizations. I worked with Prof. Subarna Shakya and implemented Data Mining and Artificial Intelligence to study and predict stock market trends. The system predicted the stock value and showed the accuracy in the range of 0 to 1 by mining the real stock data from NEPSE (Nepal Stock Exchange). The system was later converted to a web application supported by rich visualizations of data.

8085-Simulator Simulator for 8085 microprocessor

Project during the junior year of B.E. in Computer Engineering. Wrote a module for parsing instruction sets.

Skills

Programming Language

Proficient: JavaScript, Python, PHP, Shell Scripting
Familiar With: Assembly, MATLAB

Web Technologies

Node JS, Django, Sails JS, Amazon Web Services, Google Cloud Platform, GraphQL, Express JS, Angular, Nginx, Apache, Kubernetes

Database

MySQL, MongoDB, Elasticsearch, PostgreSQL, Redis