

RAMAN GHIMIRE

Chnadrhiri-15 | Kathmandu, Bagmati, Nepal 44600 | +9779843634333 |

Email: rg.raman.ghimire@gmail.com

Website: <https://raman32.github.io/portfolio/>

LinkedIn: <https://www.linkedin.com/in/raman-ghimire-806967147/>

SUMMARY

A Computer Science graduate student aspirant who has experience in Computational Fluid Dynamics (Particle Method), parallel processing using CUDA and Modelling and Simulations. Proficient in programming in C++ and OpenGL.

TECHNICAL SKILLS

Languages: C++, C, C#, HTML, MATLAB, PYTHON

Scripts: JavaScript, ReactJS, jQuery, BASH, PHP

Database: MySQL

Other Tools: MS Excel, Git, Docker

EDUCATION

Bachelors in Engineering, Mechanical Engineering 2014-2018
Pulchowk Engineering College, Tribhuvan University,

- Awarded with merit-based scholarship and 7th in overall ranking of university.

PROJECTS & RESEARCH

MPS Solver, Software Developer E&T, 2019

- Developed a NVIDIA - CUDA based Particle method solver
- Simulated a million particles on NVIDIA GTX 980 (2048 CUDA cores)
- Implemented 3-D search and sort algorithm using hash
- Successfully solved fluid momentum equation (NS equation) approximation for different turbulence models using particle method

3D Animation visualization tool, Software Developer E&T, 2019

- Developed in C++ using OpenGL
- Used to animate results from MPS solver with a capacity to handle hundred thousand particles
- Capable of rendering 3-D with rotation (in STL format)
- <https://youtu.be/ImwoRw2-glw>

Lap time calculator, Software Developer E&T, 2020

- Written in C++ with GUI in C#

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- Used to calculate theoretical lap times of racing vehicles
- Performance tuning for various aerodynamic parameters of the vehicles
- <https://www.youtube.com/watch?v=5AvKuj-bggs>

SPH DEM Solver (ongoing...), Software Developer E&T, 2020

- CUDA based particle method solver for simulating Fluid-Solid interactions (FSI) especially fluid and sand particles
- Aimed to be implemented towards analyzing soil erosions, landslides and sediment erosion from rivers

Kaaphal, founder, 2020 to current

- Information website to provide correct information to the netizens of Nepal
- Developed a web app for mock test of National Examinations (civil services)
- <https://kaaphal.com/>

Kaaphal Mobile Application Development, founder, 2020 to current

- Developed in React Native with an aim to provide Kaaphal in mobile based platforms

Automated control logic system for air conditioner, Department Project, 2018

- Generating a thermal model for a hall in my department using temperature records for 30 days and Reduced the power usage by 5%.
- Built a basic neural network and tested it on the virtual thermal model on SIMULINK

Design and Fabrication of a simple low-cost Microtome, Annual Mechanical Design Competition, 2016

- Won 1st prize in Mechanical Design Competition which is organized by Society of Mechanical Engineering Students Annually.

Numerical modelling of Automated Geared Hybrid Transmission System, Final Year Thesis, 2018

- Designed a controller to operate the engine in best efficiency region

Feasibility study of Microbial Fuel Cell plant from Bagmati River, Nepal, Research Assistant, 2014-2015

- Developed a Microbial Fuel Cell to see the feasibility of energy production and purification of sewage water that is mixed in Bagmati River in Kathmandu, Nepal.

WORK EXPERIENCE

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Sipradi Trading Pvt. Ltd., Nepal*Research Intern*Oct 2017-
Nov 2017

- Time tracker for servicing of vehicle to accurately calculate bay efficiency using raspberry pi and recommend ways to improve the time of maintenance and repair

E&T Pvt. Ltd., Nepal*Software Developer*

2018-current

- Developed a program for solving fluid problems using MPS (Moving particle semi-implicit method) method.
- Implemented CUDA for parallel processing.
- Developed a Lap time simulator for racing vehicles in C++ using OpenGL.
- Currently developing a solver based on SPH-DEM for landslide, erosion, silts and granular particles.

MERITS & AWARDS

- Awarded with *Merit based Scholarship* in undergraduate
- *Free ship awards* each semester for academic excellence in all semesters.
- Winner of *Annual Mechanical Design Competition*, 2016 – low-cost Microtome.
- Presented at *Young Scientists summit* 2016 organized by Nepal Polymer Institute on Feasibility study of Microbial Fuel Cell plant from Bagmati River.

LEADERSHIP

- Led Earthquake relief program under the banner of "*Nyano Abhiyan*", 2015
- Elected as President of Society of Mechanical Engineering Students (SOMES), 2017-18

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