SUMAN POKHAREL

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EDUCATION

Carnegie Mellon University	**Aug 2017 – Dec 2018**
Master of Science in Computational Mechanics – GPA: 3.62/4.0	*Pittsburgh, PA*
National Institute of Technology Karnataka	**July 2012 – May 2016**
Bachelor of Technology in Civil Engineering – GPA: 7.79/10.0	*Mangalore, India*

RELEVANT COURSEWORK

- Machine Learning
- Climate Change Adaptation
- Urban Systems Modeling
- Sensing and Data Mining
- Finite Elements
- Numerical Methods
- Data Acquisition
- Applied Data Science

TECHNICAL SKILLS

Programming Languages and Platforms: Python, MATLAB, R, C++, C, Jupyter Notebook
Application Software: ArcGIS, STAAD Pro, SPSS, Microsoft Office, Autocad Civil 3D, Solidworks
Communication Languages: English (Proficient), Nepali (Native), Hindi (Good)

EXPERIENCE

Carnegie Mellon University	**Jan 2019 – Aug 2020**
Research Assistant - NSF IMEE Project: Long-term Sequential Infrastructure planning under Uncertainty	*Pittsburgh, PA*

- Developed algorithms to combine ensemble of GCM models from CMIP5 projections of climate variables such as temperature, precipitation and sea level change using Bayesian and parametric methods.
- Determined better forecasting and uncertainty reduction from CMIP5 data for climate change variables.

Central Bureau of Statistics	**Jan – Mar 2017**
Surveyor Engineer	*Kathmandu, Nepal*

- Led a team to assess damaged structures and socio-economic conditions of people affected by 2015 earthquake in Nepal by carrying out on-site visual assessment of affected structures based on various damage assessment parameters.
- Evaluated urgency and necessity for evacuation and reconstruction based on assessments.
- Prepared videos, logs, field notes and recommendations and forwarded them CBS and institutions to allocate funds and resources for reconstruction.

Zenx Engineering Solutions	**May – Jul 2015**
Engineering Intern	*Delhi, India*

- Performed wind and earthquake resistant analysis and design of thermal power plant structures like oil tanks, water tanks, chimneys, silos, etc. in ETABS and STAAD Pro as per the Indian Standard (IS) Codes.
- Carried out drafting and structural design for Delhi Metro platform in AutoCAD Civil 3D and STAAD Pro.
- Estimated and optimized design and cost for residential buildings using numerical techniques.

RESEARCH PROJECTS

Assessment Of Resiliency For Systems Of Networks During Seismic Disruption, CMU | *MATLAB*	**Jan – May 2019**

- Performed network analysis for urban systems consisting of power transmission network and water distribution network to determine the reliability of system of water distribution and power transmission systems under a seismic hazard.

Muscle Fatigue Detection During Physical Training, CMU | *Python, Arduino*	**Jan – May 2018**

- Extracted Mean Autocorrelation and Mean Power Spectral Density from the vibration data collected using non-intrusive, surface MEMS accelerometer to use as features for classification.
- Implemented Support Vector Machine (SVM) algorithm in MATLAB to classify the features and subsequently fatigued vs non-fatigued state which resulted in muscle fatigue detection during a physical exercise.

Earthquake Forecasting In Indo-Nepal Region, NITK | *MATLAB*	**Jul 2015 – Apr 2016**

- Developed an algorithm using feed forward Artificial Neural Network with 2 hidden layers in MATLAB to forecast earthquakes and its magnitude based on 100 years of topological data from USGS.

Quantitative Determination of Vehicular Influence, NITK | *MATLAB*	**Jul – Dec 2015**

- Introduced a parameter called 'vehicle influence' and quantitatively determined the parameter from a large trajectory dataset of a non-lane based mixed-traffic data in MATLAB.
- Established a mathematical relationship between vehicle influence and vehicular parameters using ANOVA test and linear regression in SPSS.

LEADERSHIP / EXTRACURRICULAR

ASCE - CMU, Pittsburgh — Student Member	**Aug 2017 – Aug 2020**
Habitat for Humanity - CMU, Pittsburgh — Member	**Jan 2018 – Aug 2020**
ASCE - NITK Chapter, Surathkal, India — Executive Member	**Aug 2013 – May 2016**