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# SUDHAN BHATTARAI

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GitHub: <https://github.com/sudhan-bhattacharai?tab=repositories/>

Website: <https://sudhan-bhattacharai.github.io>

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## EDUCATION

- Degree: **Master of Science**  
Major: **Industrial & Systems Engineering**  
Colorado State University-Pueblo, Pueblo, CO.  
Graduation date: May 2021 (Expected)
  - Degree: **Bachelor of Engineering**  
Major: **Industrial Engineering**  
Tribhuvan University, IOE, Kathmandu, Nepal.  
Graduation date: May 2017
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## EXPERIENCE

### ✓ Colorado State University-Pueblo, Department of Engineering, Pueblo, CO, USA.

#### Graduate Research Assistant (Aug 2019 - Present)

- Conducted intensive literature review on mixed integer programming (MIP) optimization methods, vehicle routing problem (VRP), healthcare scheduling problems, population based heuristic methods, and benders decomposition method.
- Built a multi-objective home-healthcare routing (HHCR) plan to schedule the nurses by using mixed integer linear programming (MILP) approach to minimize the cost and to maximize the revenue of a home-healthcare (HHC) agency.
- Carried out the experimentations on healthcare scheduling algorithms from past research.
- Developed a new problem, and a new algorithm to address and solve the dynamic nature of patients in HHCR problem by using MILP and neural network approaches.
- Developed an algorithm to solve a large-size single-vehicle routing problem by using the artificial intelligence heuristic simulated annealing.

#### Graduate Teaching Assistant (Aug 2019 - Present)

- Tutoring, mentoring, and grading of classes & labs for bachelor's courses of 'EN 107: Engineering Graphics', SOLIDWORKS, and 'EN 211: Engineering Mechanics'.
- Volunteered the academic exhibitions.

#### Teaching Instructor (Aug 2020 – Dec 2020)

- Lecturing, mentoring, monitoring, and grading of undergraduate classes, and labs of 'EN 101: Introduction to Engineering'.

#### Independent Researcher: Special Topic Coursework (Aug 2020 – Dec 2020)

- Conducted research to build an efficient prediction model for the patients' length of stay in a hospital with the techniques of data science, natural language processing, and neural networks.

### ✓ Morang Auto Works (MAW) Earthmovers Private Limited, Kathmandu, Nepal.

#### Sales Engineer (Nov 2017 – Jan 2019)

- Analyzed sales data for planning purpose with Data Analysis, Statistical Analysis, and Operations Research techniques.
  - Worked as a technical sales representative to promote the business and to boost the client relationship.
  - Organized and participated in the multiple business expos.
  - Collaborated with and led the team of sales executives to build and deliver the sales plan effectively.
  - Main tools used are MS Dynamics NAV as an enterprise resource planning (ERP) system, TABLEAU, SQL, and MS Excel.
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## PUBLICATIONS

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- Bhattarai, S., Wollega, E. (2020). A 0/1 Knapsack Problem to Optimize Shopping Discount under Limited Budget. 5th North American IEOM Society International Conference.
  - Bhattarai, S., Correa-Martinez, Y., Wollega, E., Bedoya-Valencia, L. (2020). Building a Prediction Model for Forecasting Adult Care Facility Quarterly Patient Demand. 5th North American IEOM Society International Conference.
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## PROFESSIONAL SKILLS

- Excellent written and oral communication.
  - Great teamwork skills.
  - Great interpersonal skills.
  - Good leadership quality.
  - Excellent analytical insight.
  - Multitasking.
  - Time management.
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## COMPUTER SKILLS

Programming: **Python** (Advanced skills on Data Science, Machine Learning, and Deep Learning), **MATLAB, Octave, C**.

Engineering Design: **AutoCAD, SOLIDWORKS**.

Optimization: **GUROBI** (Advanced skills on linear optimization and integer programming).

Data/Visualization: **SQL, Minitab, TABLEAU**.

Simulation: **Arena** (Advanced skills on discrete event simulation), **Simio**.

Web: **HTML, CSS**.

Documentation: **LaTeX**.

## LANGUAGE

English: Very good in reading and writing.  
Good in speaking.

Nepali: Fluent.

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