

BHOJ RAJ THAPA

Lexington, Kentucky, USA

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EDUCATION

Master of Science in Electrical Engineering (Aug 2021 to Present)

University of Kentucky, Lexington
Kentucky, USA

Bachelors of Electronics and Communication Engineering (Sep 2018)

Nepal Engineering College, Pokhara University
Bhaktapur, Nepal

RESEARCH INTEREST

Digital Signal Processing, Biomedical Signal Processing, EEG Signal Processing, Image Processing, Brain-Machine Interface, Machine Learning and Pattern Recognition, Computer Vision

RESEARCH EXPERIENCE

Neural Interfaces and Signal Processing (NISP) Lab (University of Kentucky)

- Research Assistant
- Advisor: Dr. Jihye Bae
- Focus: EEG Signal Processing, Machine Learning

Kathmandu Institute of Applied Sciences, Nepal (August 2019-Dec 2019)

- Research Assistant
- Project: Low-cost Mobile Weather Station
- Supervisor: Dr. Hemu Kafle
- Focus: Data acquisition, anemometer, wind vane, tipping bucket-rain gauge, embedded systems, Internet of Things (IoT)

Research Funded by University Grants Commission (UGC) (Jan 2019 – Apr 2019)

- Undergraduate Research Assistant (Freelance)
- Project: Implementing neural network and multi-resolution analysis in EEG signals for early detection of epilepsy
- Supervisor: Asst. Prof. Sachin Shrestha
- Focus: discrete wavelet transform, multi-resolution analysis, feed-forward neural network back-propagation algorithm, principal component analysis, pattern recognition

PUBLICATIONS

Sachin Shrestha, Rupesh Dahi Shrestha, Bhoj Raj Thapa. “*Implementing Neural Network and Multi resolution analysis in EEG signal for early detection of epilepsy*”, SCITECH NEPAL, Nepal, September, 2019. DOI: <https://doi.org/10.3126/scitech.v14i1.25528>

Sachin Shrestha, Rupesh Dahi Shrestha, Amit Shah, Bhoj Raj Thapa. “*Analysis of EEG signal of specific epileptic patient prior to its occurrence*”, SCITECH NEPAL, Nepal, September, 2018. DOI: <https://doi.org/10.3126/scitech.v13i1.23497>

ACHIEVEMENTS & AWARDS

Nationwide Entrance Based Government (HSEB) Scholarship (2012)

- Higher Secondary Education Board (now National Education Board), Nepal
- Earned 100% tuition waiver in Higher Secondary Level (+2)

Faculty of Science and Technology (FST) Scholarship (2014)

- Pokhara University, Lekhnath, Nepal
- Earned 100% tuition waiver in BE (Elx. and Comm.)

Top 2% in University Department (Bachelors of Electronics & Communication Engineering)

- University topper in 7th semester with SGPA 3.84/4
- College topper and university second topper in 8th semester with SCGPA 3.95/4

SKILLS

Coding

- MATLAB: implemented in Signal and Systems, Digital Signal Processing, Filter Design, Numerical Methods, final year project and research on EEG analysis of epileptic patient (for almost 2 years)
- C++, Arduino IDE: implemented in projects like Path Follower Robot, Mobile Weather Station
- Python: basic machine learning libraries, opencv-python library
- Android Studio: non-credit course in Bachelors of Engineering (7th Semester)

Other: Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Pencil (for flowcharts and block diagrams), Sony Vegas Pro (video editing software)

PROJECTS ACCOMPLISHED

Low-cost Mobile Weather Station (Aug 2019- Dec 2019)

- Company: Kathmandu Institute of Applied Science
- Supervisor: Dr. Hemu Kafle
- Focus: Arduino, Internet of Things (IoT), embedded system, data acquisition

Vehicle Entry System Using Image Processing (June 2019 – Sept 2019)

- self-made project to learn image processing and python programming language
- Focus: Raspberry Pi, grayscale conversion, box filtering, erosion, dilation, background subtraction, thresholding, reference lining, template matching

Classification of EEG signal extracted prior to the epileptic seizure to detect its onset for patient specific case. (Sept 2017 to Dec 2018)

- Final Year Project
- Supervisor: Asst. Prof. Sachin Shrestha
- Focus: supervised machine learning, discrete wavelet transform, discrete Fourier transform, pattern recognition, artificial neural network

Scientific Calculator for Android (Nov 2017)

- used Android Studio during non-credit 7th Sem. Android App Development course

Line Follower Robot (Aug 2016 – Sept 2016)

- Arduino as microcontroller and used C++ and Arduino built in methods

FM Transmitter (Mar 2015 – Sep 2015)

- 2nd year minor project
- Supervisor: Amit Shrestha
- Focus: Frequency generation (LC Circuit), amplification and frequency modulation technique to transmit audio data

555 Timer IC Projects

- Security Lock System (during Internship)
- Mosquito Repellent Circuit (Before Mar 2015)

**CAMPUS
& OTHER
ACTIVITIES**

International Conference Participant/Volunteer

- Mountains in the Changing World (Mo.Ch.Wo) 2019
- Kathmandu Institute of Applied Sciences, Kathmandu, Nepal

Path Follower Robot Workshop (Participation)

College Sports Event Volunteer

- Umpire in Kabaddi Tournament
- Umpire in Cricket Tournament

College Cricket Team Member

Intra-College Chess Tournament 2nd Runner Up

LANGUAGES

Nepali, English, Hindi