Ratan Lal Bunkar

Location: Taipei, Taiwan

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Summary

Engineering Professional with a Master's degree in Electrical Engineering and a strong skill set in software development, Machine Learning and AI. Proficient in multiple programming languages, including C++, Python, and JavaScript, and experienced in popular frameworks such as PyTorch, Express, React. Skillful in using databases and several development tools, with a proven ability to work effectively under pressure and strong analytical and logic building skills. Passionate about learning new technologies and able to work collaboratively and independently on software development projects. A fast learner with a strong work ethic and dedication to producing high-quality results.

Technical Skills

Languages	:	Pyhton, JavaScript, C, C++, HTML, CSS
Frameworks	:	Nodejs, Express, React, NEXT.js Pytorch, Bootstrap, Tailwind CSS
Python-Libraries	:	Numpy, Pandas, Torchtext, Pyroomacoustics, Matplotlib
JavaScript-Libraries	:	React-Redux, @reduxjs/toolkit, classnames, Stripe, bcryptjs, dotenv, jsonwebtoken, nodemailer
Databases	:	MySQL, MongoDB, Mongoose, Sequelize
Dev Tools	:	Visual Studio Code, Git, Linux, Docker, Kubernetes

Experience

Research Assistant 2021 – 2023
Taipei Tech *Systems and Control Lab*

- Collaborated with professor and research assistant professor team to build a novel noise reduction method using non-negative matrix factorization to get clean singing voices.
- **Publication :** Ratan. L. Bunkar, K.Y. Lian "Nonneagtive Matrix Factorization based noise reduction method over singing voices extracted from RPCA and REpet", International Conference on System Science and Engineering 2022 I.D.1147

Control Department Internee MAR – AUG 2018
DCM Engineering Products *Ropar, Punjab, India*

- Assisting automation of manufacturing unit with Programmable Logic Controllers (PLC) using Ladder logic and Simatic Step 7 and Human Machine Interface (HMI)

Education

National Taipei University of Technology Taipei, Taiwan
Master of Science in Electrical Engineering *Feb 2021 – Jan 2023*

- **Thesis:** "Noise Reduction Using Non-neagtive Matrix Factorization with Distributive Penalties on Singing Voices Extracted from RPCA and REpet"
- **Awards:** 2021-2023 Taipei Tech International Student Scholarship, NTUT
  2021-2023 SVS Project Research Grant, Systems and Control Lab, NTUT

Indian Institute of Technology Ropar, Punjab, India
Bachelor of Science in Electrical Engineering *Apr 2016 – July 2020*

- **Achivements:** Scored Top 20 Percentile in JEE Mains
  Cleared JEE Advance Examination

Projects

eCommerce Website *Node.js, Express, MongoDB , React, CSS*

- Utilized various libraries such as bcryptjs for password hashing, body-parser for parsing incoming request bodies, cloudinary for image and video management, cookie-parser for cookie handling, dotenv for environment variable management, express-fileupload for file uploads, jsonwebtoken for authentication, mongoose for database modeling, nodemailer for sending email notifications, stripe for payment processing, and validator for input validation.

Singing Voice Separation *Flask Web Framework, HTML, CSS, UNet 1D Conv*

- Built a 1D Convolutional Neural Network (CNN) architecture using UNet based encoder-decoder for singing voice separation.
- Trained the network using PyTorch framework, optimized using Adam optimizer and used mean squared error (MSE) loss function for evaluation.
- Implemented a user-friendly web application using Flask, with a clean and intuitive user interface, to demonstrate the performance of the trained network. Utilized the torchaudio and librosa libraries for audio processing and feature extraction.

Interests

- Reading and understating New Technologies, especially in the field of machine learning and Neurosciences.
- Playing and watching football and a huge fan of e-sports “Valorant”.
- Cooking spicy Indian cuisines.

Languages

- English – TOEIC (825/1000)
- Hindi – Native