

# DIWAS BHATTARAI

225-907-8545 | [diwas.bhattacharai@gmail.com](mailto:diwas.bhattacharai@gmail.com) | <https://diwasbhattacharai.github.io>

## EDUCATION

### Ph.D. in Computer Science

*Expected May 2023*

*Louisiana State University*

- Applied machine learning methods, including neural networks (in PyTorch) and tree-based models (in scikit-learn), for silicate melts viscosity modeling, attaining better RMSE on larger datasets than subset-optimized physical models while facilitating extensive parameter integration.
- Developed a full-stack web application for data modeling and visualization with Angular, D3, Flask, and MongoDB.
- Published research findings in "Parallel Coordinates-based Visual Analytics for Materials Property" (2019).

### Bachelor of Science in Computer Science (Minor in Mathematics)

*2013*

*Southeastern Louisiana University*

## EXPERIENCE

### Machine Learning Engineer

*Fall 2022 - Present*

*spores.vision | Denver, CO*

- Selected and extracted audio features into tabular form to perform classification.
- Trained XGBoost and neural network models, achieving an accuracy of over 90%.

### Application Developer Intern

*Summer 2018, Spring 2019, Fall 2019*

*T. Baker Smith | Baton Rouge, LA*

- Developed real-time data visualization components to monitor IoT data from pump stations across Louisiana.
- Set up Azure services for big-data pipeline management and integrated anomaly detection components to facilitate the processing and analysis of IoT data, including pressure, temperature, and surface level metrics.
- Implemented a cross-platform tablet application for internal use to improve field survey user experience.
- Collaborated on making hardware prototypes for marketable devices.

### Instructor

*Spring 2018, Fall 2018, Fall 2020*

*Louisiana State University | Baton Rouge, LA*

- Delivered lectures for introductory C++ programming courses to over 60 undergraduate students per semester.
- Created syllabi, designed assessments, and constructed examinations to evaluate student progress.

### Software Developer Analyst

*2013-2015*

*Amedisys Inc. | Baton Rouge, LA*

- Contributed to public-facing ASP.NET web application through full-stack development of new features.
- Researched and evaluated available mobile technologies, leading to the development of cross-platform mobile application prototypes for MercuryDoc using native and multi-platform frameworks.
- Developed real-time code analysis and maintainability metric Visual Studio extension for C# and JavaScript using Roslyn, Esprima, and Rx libraries, improving software development efficiency.
- Designed and developed integration components using the Rx framework to enable seamless communication between MercuryDoc and third-party cloud hosting services.

## PROJECTS

**Chord Variations (2023):** Developed a GPT-4 powered full-stack web application to generate chord progression variations based on user input. Used Flask for the backend and JavaScript, HTML, and CSS for the front end.

**Generative Music (2021):** Trained RAVE on the content of three sides of a music album to generate new and unique music tracks for the fourth side. Trained SampleRNN and WaveNet to generate Nepalese traditional music.

**Music Video Generator (2020):** Used StyleGAN to generate audio-reactive music videos.

**Jazz Chord Prediction (2017):** Trained WORD-RNN variant models to predict jazz chords.

## SKILLS

Python, NumPy, scikit-learn, pandas, Typescript, SQL, MATLAB