Research Assistant

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DIPESH SHRESTHA

Education

MASTERS IN DATA SCIENCE – University of Greenwich – London, UK 2023 – 2024
Majors: Statistical Methods for Time Series Analysis, Applied Machine Learning, Data Visualization, Big Data
Thesis: *Unsupervised Approach to Identify Positive Play in Gambling*

BACHELORS IN COMPUTER ENGINEERING – Tribhuvan University – Kathmandu, Nepal 2015 – 2019
Majors: Artificial Intelligence, Simulation & Modeling, Big Data
Thesis: *Sentiment Classification using LSTM for Devnagari Nepali Text*

Research Experience

NEUROPHYSIOLOGICAL MECHANISM OF MENTAL SIMULATION

- Designed and implemented MEG-optimized cognitive tasks in MATLAB to probe mental simulation.
- Developed and tested analysis pipeline for MEG frequency analysis using Fourier transforms.

SOURCES OF VARIABILITY ACROSS TIMING TASKS

- Designed a mental navigation experiment using Psychopy and Ouvrai.
- Collected behavioral data in two phases: online via Prolific, followed by offline experiments with an eye tracker.
- Conducted computational modeling and neural data analysis to identify sources of variability.

EYE MOVEMENTS PREDICTS CATEGORY OF ABSTRACT CONCEPTS

- Designed cognitive tasks in MATLAB to decode abstract concepts using eye movements.
- Collected behavioral and eye tracking data in human participants.
- Performed analyses including LDA, time-resolved analysis and statistical testing.

Publications

Neupane, S., Pandey, A., Prasai, S., Shrestha, D., & Neupane, S. (2023). **Developing Science Research by Recognizing the Human Capacity for Inquiry**. Journal of Neuroscience, 43(44), 7243-7246. https://doi.org/10.1523/JNEUROSCI.1790-23.2023

Pandey A, Shrestha D and Neupane S (2025) **Perceptual-Cognitive Training Paradigms for Understanding Cognition and Cortical Visual Impairments**. Hippocampus - Functions, Disorders, and Therapeutic Interventions [Working Title]. IntechOpen. http://dx.doi.org/10.5772/intechopen.1009575

Work Experience

RESEARCH ASSISTANT – Bottini Lab, CIMeC May 2025 - Present

- Assisted in experimental planning, subject recruitment, and data collection.
- Presented ongoing research and results at lab meetings.
- Actively participated in and contributed to scientific brainstorming and experimental design discussions.

DATA SCIENCE INTERN – Future Anthem Jul 2023 - Dec 2023

- Developed a Gaussian Mixture Model in *PySpark*, increasing precision for identifying positive play behavior by **20%**.
- Updated and optimized *Power BI* dashboards using *DAX* enabling real-time monitoring.
- Assisted data scientists with **QA** and model testing ensuring thorough validation and accuracy of models.

SOFTWARE DEVELOPER – Nimble Clinical Research Dec 2020 - Dec 2022

- Led the development of a clinical data analysis platform, processing over 50 million clinical records.
- Developed a comprehensive data visualization component, utilizing R programming language and Plotly library.
- Implemented a reporting system using *Jinja* templating engine to generate customizable reports in PDF.

Skills

- SQL (SQL Server, MySQL, PostgreSQL)
- Python (MNE, Pandas, NumPy, SciPy, MatPlotLib, Plotly)
- Data Analysis and Modeling
- Excel
- Microsoft Azure
- Web Programming (HTML, CSS, Javascript)
- MATLAB
- Microsoft Power BI

Honours & Awards

- Awarded **1st** Position in Tech Bihani 3.0 organized by PACE(Project Association for Computer and Electronics) of Advanced College of Engineering and Management.
- Awarded **2nd** Position in KU IT Meet organized by Kathmandu University