

# RABIN BK

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## Experiences

### Working Student

*Primetals Technologies*

January 2025 – Present

*Erlangen, Germany*

- Worked with multivariate time series data for Anomaly Detection systems
- Experimented traditional ML models and Variational Auto-Encoder models enlisted in PyOD Library
- Besides training models on the raw data, we also train the model on Annotated data. So upon numerous experimentation, the combination of Mean and Variance provided models better representation of the data resulting to better inference in comparison to other (Sum, Standard Deviation, etc.)
- Technologies Used: Python, JupyterNotebook, Docker, Pandas, Plotly, Dash and Git

### Working Student

*Forschungszentrum Jülich*

May 2024 – January 2025

*Nuremberg, Germany*

- Developed an **inventory and privilege management system** for experiments at HIERN, enabling controlled user access and preventing accidental deletion of other users' experiments.
- Implemented Python scripts to connect JupyterHub to the MySQL database, allowing users to submit, replicate, and track experiments.
- Set up automated database backup and logging using **automysqldbbackup**, ensuring data reliability and reproducibility.
- Technologies Using: MySQL Workbench, AutoMysqlBackup, Python, Jupyterhub, Bash, Pandas and Git

### Teaching Experience - Computer Science Teacher

*Lumbini Academy College*

December 2021 – January 2023

*Kathmandu, Nepal*

- Taught **Computer Science** to secondary school and +2 (higher secondary) students
- Delivered lectures on programming, algorithms, and database fundamentals
- Supervised student projects and guided practical lab sessions

### Computer Skills Trainer

*Kathalaya Educational Consultancy (Part-time / Contract)*

January 2022 – January 2023

- Delivered 3-month technical training programs to post-+2 graduates over 2 years.
- Trained **150+ students** across **3 annual shifts**, with **25+ students per batch**.
- Covered **MS Office, C programming, HTML/CSS, Git/GitHub, and GitHub Pages deployment**.
- Led project-based learning with a final capstone project.

### Backend Intern

*Wiseyak Inc.*

July 2021 – Oct 2021

*Kathmandu, Nepal*

- Written GraphQL queries to query data for the dashboard and report related to FHIR (Fast Healthcare Interoperability Resources).
  - Written codes to extract and plot graphs based on reports and insights from PDF using pdfplumber.
  - Technologies Used: Python, GraphQL, Clojure, Dgraph and GitLab
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## Skills

- **Programming Languages:** Python, C, C++
- **Databases:** MySQL, PostgreSQL, Dgraph
- **Frameworks & Libraries:** Keras, PyTorch, Pandas, Django, Pydantic, Streamlit, FastAPI, WandB
- **Data Visualization:** Seaborn, Plotly, Dash
- **MLOps / CI/CD:** Docker, Aptainer (Singularity), GitHub Workflow, HPC (SLURM)
- **Developer Tools:** VS Code, Git, Google Colaboratory
- **Languages:** English, German, Nepali

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## Education

### FAU Erlangen-Nuremberg

M.Sc. Data Science

Germany  
2023 – Present

- Relevant coursework: Deep Learning, Mathematics of Learning, Pattern Analysis, etc.

### Tribhuvan University

B.Sc. Computer Science and Information Technology

Nepal  
2016 – 2020

- Relevant coursework: Probability and Statistics, C programming, Computer Networks, , Data Structures and Algorithms, etc.
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## Research and Projects

- **Yugantar – Internal Wealth Management System** | *Python, FastAPI, Pydantic, Alembic, Docker, React, PostgreSQL (pgAdmin), Nginx Redis* | Github: <https://github.com/Crazz-Zaac/yugantar> – Personal Project (Ongoing)
  - Developing an internal platform to track **monthly and occasional deposits, loans**, and administrative activities based on user **access roles** and **co-operative roles**.
  - Implementing **policy-driven financial workflows**, allowing dynamic adjustment of deposit and loan policies.
  - Designing and developing a **full-stack dynamic web application** with a modern API-driven architecture.
  - Implementing backend services using **FastAPI** with data validation via **Pydantic**.
  - Managing database schema and migrations using **PostgreSQL** and **Alembic**.
  - Containerizing services using **Docker** for consistent development and deployment.
  - Developing a responsive frontend using **React** and integrating it with RESTful APIs.
- **Dynamic Website Development – Gele Trekking** | *MERN stack, Docker* | Github: <https://github.com/Crazz-Zaac/geletrekking> – Mentoring (Ongoing)
  - Guiding the development of a **dynamic web application** for a trekking company using the **MERN stack**.
  - Supervising backend API design, frontend integration, and database interactions.
  - Implementing and reviewing **Docker-based containerization** for development and deployment workflows.
  - Managing and reviewing code via a **public GitHub repository**.
- **Investigating Informative Missingness in Time Series Laboratory Data** | *Python, Docker, Apptainer, Pandas, Bash, Pydantic, SQLAlchemy* | GitHub: <https://github.com/Crazz-Zaac/informative-missingness>
  - Predicted **Missingness Not at Random (MNAR)** in the MIMIC-IV database as part of a 10 ECTS project in the Bioinformatics lab
  - Developed a modular ML pipeline for training **traditional models** (XGBoost, Random Forest, CatBoost, Gradient Boosting) and a **linear model** (Logistic Regression)
  - Applied models on two medical cohorts: **Aplasia** and **Neutropenic Fever**, using both target and demographic features (age, gender, anchor\_age)
  - Containerized training workflow supporting local execution in Docker and HPC deployment via Apptainer, ensuring reproducibility and scalability
- **Crypto Data Visualization** | *Python, Pandas, Dash, Streamlit, GitHub* | GitHub: <https://github.com/Crazz-Zaac/crypto-data-vis>
  - Scraped crypto data using Binance API for specified dates
  - Performed visual financial analysis (MA, EMA, WMA, SMA, etc.)
  - Implemented currency conversion with latest updated values