

# RODWAN BAGDADI

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## EDUCATION

**German Jordanian University**

*Bachelor of Mechatronics Engineering*

**Expected Graduation: June 2025**

*Madaba, Jordan*

**Bochum University of Applied Sciences**

*Exchange Semester*

**Sep 2023 – Mar 2024**

*Bochum, Germany*

## WORK EXPERIENCE

**Bosch Engineering GmbH**

*Software Steering Intern*

**Mar 2024 – Sep 2024**

*Abstatt, Germany*

- Designed and simulated advanced state estimation systems using **Kalman Filters** in **MATLAB** and **Python**, demonstrating their limitations in non-linear dynamics and irregular sensor sampling through hands-on modeling of both linear and non-linear systems
- Mastered **prompt engineering** principles while leveraging an internal **GPT-3.5 Turbo** model to validate AI-generated outputs, conducting cross-linguistic evaluations and learning how to optimize prompt structure, and tone to maximize clarity and truthfulness in internal decision-support tasks
- Built a predictive model using **Ensemble Learning** and **Random Forests** in Python to forecast Titanic survival outcomes, experimenting with feature selection and data preprocessing to achieve **top 20%** leaderboard placement and highlight the tradeoff between model complexity and generalization

## PROJECTS

**Sales Insights Data Analysis**

**Power BI | MySQL | DAX**

- Developed comprehensive **Power BI** dashboards with **MySQL** backend, implementing currency normalization, time-based analysis, and geographic insights
- Delivered actionable business insights including identification of **top 20%** customers contributing to **80% of revenue**, seasonal trends with Q4 showing **35% higher sales**, and **15% profit margin** improvement opportunities

**Fake News Detection | Graduation Project**

**Flask | Gradient Boosting | BERT NLP**

- Adapted and fine-tuned an **XGBoost**-based fake news detection model using **TF-IDF** vectorization and key metadata features, achieving over **92%** accuracy on a labeled public dataset
- Enhanced model robustness and generalization through iterative evaluation and tuning of advanced machine learning models, including **SVM**, **LightGBM**, **Random Forest**, and **Logistic Regression**, with precision and recall consistently above **90%**
- Integrated a state-of-the-art **DistilBERT** transformer-based language model to capture nuanced linguistic patterns, further improving detection of subtle misinformation
- Deployed the ensemble of models using **Flask** as a backend service, with an interactive **HTML** frontend for real-time, web-based fake news detection and user feedback

**Diabetes Classifier**

**SVM | KNN | Random Forests**

- Achieved a **74.92%** accuracy by developing a diabetes prediction model using **Support Vector Machine (SVM)** on a cleaned dataset of **70,692 cases** derived from **253,680 survey responses**
- Compared **4** machine learning algorithms (**SVM**, **KNN**, **Random Forests**, **Decision Trees**), demonstrating **SVM's** superior performance while highlighting overfitting issues in tree-based models

## TECHNICAL SKILLS

**Languages:** Arabic (Native), English (Fluent), German (Intermediate B1)

**Coding Languages:** Python, MATLAB, HTML

**Developer Tools:** Git, VS Code, Visual Studio, PyCharm

**Libraries:** Pandas, NumPy, Matplotlib, PyTorch, SciKit-learn, Seaborn, TensorFlow