Rodwan Bagdadi

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Education

German Jordanian University — **Expected Graduation: July 2025**
Bachelor of Mechatronics Engineering — *Madaba, Jordan*

Bochum University of Applied Sciences — **Sep 2023 – Mar 2024**
Exchange Semester — *Bochum, Germany*

Work Experience

Bosch Engineering GmbH — **Mar 2024 – Sep 2024**
Software Steering Intern — *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: Pyhton, MATLAB, HTML
Developer Tools: Git, VS Code, Visual Studio, PyCharm
Libraries: Pandas, NumPy, Matplotlib, PyTorch, SciKit-learn, Seaborn, TensorFlow