**I. Nomination Form**

THE 2023 WCO BACUDA SCHOLARSHIP (DATA ANALYTICS) PROGRAMME

In-person, from September 2023

**Letter of Recommendation**

INSTRUCTIONS

1. To be completed by, or under the authority of, **the Head of the nominating administration** e.g., **Director General, Commissioner or equivalent official**. Please note that a nomination form signed by any person other than the Head will be considered invalid.
2. Please type or print clearly (preferably type on word processor, except for signature).

THE CUSTOMS ADMINISTRATION OF (name of country)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NOMINATES Mr./Mrs./Ms. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Current position/title) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(Division) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**For**

**The 2023 WCO BACUDA Scholarship (Data Analytics) Programme at**

**SungKyunKwan University (SKKU)**

**AND CERTIFIES THAT:**

(A) The studies to be carried out under this Programme are necessary for the advancement of the Customs administration of the country;

(B) All information supplied by the candidate for this application is complete and correct;

(C) The candidate is capable of participating in the course and is fully proficient in English.

**Statement on candidate’s assignment upon completion of the Programme**

*Statement by the Head of Customs, making a commitment to assign the official to the relevant work area after completion of the Programme (primarily in line with the data strategy or policy of Customs)*

*(Example)*

*OOO Customs nominates Mr./Ms. OOO to participate in the BACUDA Scholarship Programme and fully supports his/her continuing work in/at ……..*

**DATE AND PLACE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**II. Application Form**

**INSTRUCTIONS:**

*To be completed by the candidate. Please type. All questions must be answered comprehensively and clearly. Candidates may supplement with additional pages if necessary.*

**A. COMMITMENT**

As a Customs official, I hereby present my application for the WCO BACUDA Scholarship Programme.

I certify that my statements in answer to the following questions are complete and correct. If selected for the Programme, I undertake to:

1. conduct myself at all times in a manner compatible with my status as a participant in the WCO BACUDA Scholarship Programme; and
2. complete the in-house administrative process, sending proof of vaccination prior to the start of the Programme.

**B. PERSONAL INFORMATION**

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**FAMILY NAME (SURNAME) FIRST NAME**

1. **NATIONALITY: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. DATE OF BIRTH: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **Contact Address of the candidate**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Office TEL: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Mobile: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**E-mail: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **LANGUAGES**

**MOTHER TONGUE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Other language(s)** | **Reading skills** | **Writing skills** | **Speaking skills** |
|  |  |  |  |
|  |  |  |  |

*In the grid shown above, rate your proficiency in languages using the following ability levels:*

**E: Excellent G: Good F: Fair L: Low**

1. **EMPLOYMENT RECORD**

***Note:*** *Please give comprehensive information about your professional background, starting with your most recent (current) post. For each post, specify the job title, years of service and main duties. You may add additional columns as you see fit.* ***Kindly attach your Resume or Curriculum vitae to the nomination form.***

|  |  |  |
| --- | --- | --- |
| **Period of employment**  From - to | **Position / title / occupation** | **Description of tasks and responsibilities** |
| (Present) |  |  |
|  |  |  |
| (Past) |  |  |

* I have been working for my Customs Administration since \_\_\_\_\_\_\_\_\_\_\_\_
* I attach a Resume or Curriculum vitae : □ Yes

1. **EDUCATION: (start with your most recent studies, and work backwards)**

*Please include any past training experiences under WCO scholarship programmes*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name and place of institution** | **Academic qualification obtained** | **Years of Study**  **From - to** | **Major field(s) of study** | **Study language used** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature of candidate: \_\_\_\_\_\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**III. Cover Letter**

*INSTRUCTIONS: Write a cover letter that highlights your key achievements, work experience and/or personal characteristics relevant to the Programme, your motivation for applying, etc.*

**IV. English Proficiency**

*INSTRUCTIONS: Please attach a PDF scan of documents that* ***prove your proficiency in English, such as TOEFL, TOEIC or any national certificate.***

**V. Group Project proposal**

*INSTRUCTIONS: This proposal will outline the key objectives, scope and approach of your proposed Project, as well as the expected deliverables. It will serve as a foundation for further planning and execution during the course, in a group of 3 or 4 trainees. Please submit the proposal in a Word file (font size 11), maximum 1,000 words.*

## **Introduction**

* State the objectives of the Project by identifying specific challenges in Customs to be solved, and provide a brief overview of the roadmap for the Group Project, outlining the objectives and scope.

## **Theoretical Bases and Methodology**

* Provide a high-level explanation of the AI and ML concepts that could be used (e.g., Basics regarding supervised and unsupervised learning);
* Describe the methodology to be used in simple terms, focusing on the approach to be taken in solving the Customs challenges (e.g., collecting and preprocessing customs data, training a machine learning model and using it for predictive analysis and decision-making).

## **Implementation plan**

* Explain why the application of AI and ML techniques is suitable for addressing the challenges identified (e.g., Lack of resources, Leveraging large amounts of data);
* Describe the data to be used, including the data sources (e.g., Import Declarations, Inspection Data, Cargo Manifests);
* Highlight any preprocessing steps needed to prepare the data for analysis (e.g., Data Cleansing, Feature Selection, Normalization);
* Highlight any key decisions and/or challenges anticipated during the implementation (e.g., Data Integration of different sources, Data Quality).

## **Results and conclusions**

* Present the expected results to be obtained from the model development;
* Summarize the main findings and conclusions to be drawn from the Project;
* Discuss any limitations or areas for improvement identified (e.g., Need for continuous data updates, Need to adapt the model to a changing environment).

**(Annex) Sample Topics for Group Project**

*Applicants are requested to put forward a topic of interest or select one from the sample list set out below, to develop analytic models for Customs. These topics have been generously shared by Korea Customs.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Area** | **Project** | **Purpose** | **Skills** | **Data Sources** |
| 1 | RM | AI based Risky  Cargo Selectivity  Model | Developing automated cargo selection algorithm for cargos which are prone to fraudulent declaration | RNN, CNN, Decision Tree, Ensemble Model | Import declaration DB,  Import inspection category,  Inspection result |
| The aim of this project is to develop an AI model that can automatically select high-risk cargo based on the likelihood of fraudulent declarations. By using deep learning techniques, the model will analyse data from the import declaration database, import inspection category and import inspection results. The objective is to enhance risk assessment and enable the more effective targeting of risky cargo for inspection, thereby optimizing resource allocation and contributing to customs fraud prevention and revenue protection efforts. | | | | |
| 2 | Post Audit | AI based Revenue  Forecast | Predicting Customs duty and national tax with deep learning on time series data | CNN(Conv1D), RNN(LTSM, GRU) | Economic data such as daily collection amounts, exchange rates and interest rates |
| This project focuses on leveraging deep learning techniques to forecast Customs duty and national tax based on historical time series data. By analysing economic data such as daily collection amounts, exchange rates and interest rates over the past 10 years, the model will learn patterns and relationships in order to generate accurate revenue forecasts. The successful implementation of this project will enhance revenue planning and enable proactive decision-making in customs administration. | | | | |
| 3 | Clearance | AI model to select  illicit international  mail | Developing risky cargo selectivity model by training information on pre-clearance and delivery of international mail | Time Series Auto-Encoder Deep Learning | Customs clearance DB for postal items, Import declaration DB (CDW) |
| The aim of this project is to develop an AI model for selecting illicit international mail by leveraging Time Series Auto-Encoder Deep Learning. By learning patterns of suspicious activities and anomalies, the model will improve cargo selectivity, leading to more effective identification of illicit shipments. Through the implementation of this project, customs authorities can enhance their capabilities in detecting and preventing illegal international mail transactions, thereby contributing to border security and trade facilitation objectives. | | | | |
| 4 | Surveillance | Risk Management  for Bonded  Warehouses | Analyzing probabilities of illegal activities using rating information on bonded areas | KNN, Decision Tree, CNN, RNN | Export-import database, Investigation database (CDW, electronic customs clearance) |
| This project focuses on the risk management of bonded warehouses by analysing the probabilities of illegal activities. By employing machine learning techniques, the model will analyse rating information on the bonded area to assess the likelihood of illegal activities. The insights gained from this analysis will support targeted interventions, resource allocation and effective risk mitigation strategies for bonded warehouses, thus ensuring compliance and security within these facilities. | | | | |
| 5 | Investigation | Overseas Sellers  Data Analysis | Analysing addresses of foreign companies which are believed to be paper companies | Python, TF-IDF vectorizer, geospatial data API | Import declaration history, overseas trading partner code details |
| The aim of this project is to conduct data analysis on the addresses of foreign companies suspected of being paper companies. The project will process and analyse import declaration history and overseas trading partner code details. The objective is to identify patterns, anomalies and potential cases of fraudulent activities related to paper companies involved in trade transactions. Through this analysis, customs authorities can enhance their understanding of the risk landscape and develop targeted strategies to combat illicit trade practices. The insights gained from this project will support investigation efforts and contribute to strengthening customs enforcement and trade compliance. | | | | |