

# VACLAV KUBON

☎ +420 777 683 105 ✉ [kubonvaclav@gmail.com](mailto:kubonvaclav@gmail.com) 🔗 [linkedin.com/in/vaclavkubon](https://linkedin.com/in/vaclavkubon) 🐙 [github.com/wenceslai](https://github.com/wenceslai)

## EDUCATION

**Master of Science (MSc) – Advanced Computer Science (Artificial Intelligence)** Sep. 2025 – Sep. 2026  
*University of Oxford*

- **Relevant Courses:** Uncertainty in Deep Learning, Computer Vision, Computational Game Theory, Geometric Deep Learning, Foundations of Self-Programming Agents, Robust and Distributed Control

**Bachelor of Science (BSc) – Computer Science and Engineering** Sep. 2022 – June 2025  
*Delft University of Technology* *Cum Laude, with Honours (GPA: 8.8/10)*

- **Relevant Courses:** Multimedia Processing track, Calculus, Statistics, Linear Algebra, Reasoning and Logic, Automata Computability and Complexity, Machine Learning, Data Management, Algorithm Design
- **Robotics Minor:** 30 ECTS program featuring a six-month team project with an industry partner to develop a custom industrial robot, alongside courses in Robot Dynamics, Circuit Analysis, and Industrial Design.
- **Honours Programme:** extra 21 ECTS program for high-achieving students, featuring a research project in one of Delft's labs and an interdisciplinary course in History and Philosophy.

## RESEARCH EXPERIENCE

**Bachelor Thesis – Sampled MuZero for Continuous Control** Apr. 2025 – June 2025  
*Delft Sequential Decision Making Group* *Delft, Netherlands*

- Tested novel action sampling strategies for Sampled MuZero in continuous control, implementing the first scalable JAX-based version of the algorithm. Showed progressive widening can lead to improved planning depth, computational efficiency, and episode returns in robotics simulation. *Supervised by Prof. F. Oliehoek*

**Unsupervised Feature Generation for Preference Modeling** Oct. 2024 – Feb. 2025  
*UCL DARK Lab* *London, UK (Remote)*

- Collaborating as a co-author to test an unsupervised technique that uses LLMs to extract features from text corpora. We are investigating how effectively these features can be used to train preference models that rank prompt responses.

**Bayesian Neural Network Compression** Apr. 2024 – Dec. 2024  
*Delft Systems and Control Lab* *Delft, Netherlands*

- Developed a novel neuron-level pruning algorithm for Bayesian Neural Networks. Achieved state-of-the-art performance by pruning up to 80% of neurons without performance loss on the UCI regression datasets.
- The algorithm's objective function balances the number of pruned neurons and changes in the network's predictive distribution after pruning, measured by the Wasserstein metric. *Supervised by Dr. L. Laurenti and Prof. A. Anand.*

**Drone Model Mismatch** May 2024  
*Delft Cognitive Robotics Lab* *Delft, Netherlands*

- Simulated quadrotor drone dynamics in Gazebo, analyzing pitch, roll, and yaw with Model Predictive Control. Identified discrepancies between models and real behaviour, enhancing drone safety. *Supervised by Prof. J. Hellendoorn.*

## WORK EXPERIENCE

**Software Engineering Intern** July – Aug. 2024  
*Microsoft* *Prague, Czechia*

- Worked on DevDiv's Guardian static code analysis tool. Reduced Azure telemetry pipeline latency by 40% by optimizing batching time. Made the infrastructure automatically deployable via Azure Pipelines and ARM templates.
- Optimized Azure Data Explorer by adding a deduplication step to the ingestion pipeline (saving 3 TB/month). Sped up a business-critical KQL query 4× with incremental aggregation, enabling long-term insights

## Machine Learning Research Intern

*Rossum (intelligent document processing startup)*

July – Aug. 2024

*Prague, Czechia*

- Increased end-to-end product accuracy by 4% on company benchmarks by developing a document-ranking algorithm that improved the selection of similar documents for few-shot classification.
- Created an “online” version of the algorithm inspired by Thompson Sampling that updates document rankings as new data comes in, balancing exploration and exploitation.

## Software Engineering Intern

*ASML*

Apr. – June 2024

*Veldhoven, Netherlands*

- Developed a hierarchical clustering plot inspired by online zoomable maps that lets quality control engineers spot defects on microchips faster. Renders dataset of 1M+ points under 1s (a ~20x speedup over ASML’s current approach).
- Led my team to integrate the plot along with other visualizations and data aggregation tools into an interactive React application, securely storing the company’s data in a Spring backend.

## Machine Learning Engineer

*Blindspot AI (tech consultancy)*

Oct. 2022 – May 2023

*Prague, Czechia (Remote)*

- For a US startup that helps the unemployed, I implemented and deployed a Flask API that parses user resumes, prompts GPT-3.5 to extract profile information, and processes outputs into a structured JSON response.
- My suggestion to eliminate complex rule-based parsing in favour of LLMs improved accuracy by ~30%, reduced development costs by streamlining the team from two engineers to one, and secured future client collaboration.

## SELECTED PROJECTS

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### Robotics Minor Project | *C++, Python, ROS*

Sep. 2024 – Jan. 2025

- Led a six-member interdisciplinary student team with a 7000 EUR budget to develop a fully autonomous platform for greenhouses that can transport up to 100 kg of harvested crops, thereby enhancing agricultural productivity.
- Implemented wireless Bluetooth localisation, Kalman filters, A\* path planning, computer vision robot alignment, sonar-based collision detection and a central server for distributing work among multiple robots.

### License Plate Recognition | *Python, OpenCV, NumPy*

Feb. 2024 – Mar. 2024

- Used pre-machine learning techniques like morphology, colour segmentation and a custom contour finding algorithm to localise and recognise license plates. Achieved the best performance in the Image Processing course with 88% accuracy.

## LEADERSHIP

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- **Delft AI Safety Initiative Board Member (2024 – 2025)**  
Tutoring a 5-week AI Alignment 101 course and hosting book club events.
- **Delft Debating Club President (2023 – 2024)**  
Coached competitive debating on topics such as technology, politics, and philosophy. Doubled the number of active members through workshops, better advertisement and social events.

## AWARDS

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**Bakala Foundation Scholarship** – Full tuition funding for my MSc study at University of Oxford  
**1st Place, Soutez a Podnikej 2021** – The largest national startup competition for Czech high school students.  
**Octofinalist, World Schools Debating Championship (2022)**  
**2x Champion and 2x Best Speaker, Czech National Debating League (2021, 2022)**

## SKILLS

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**Programming Languages:** Python, Java, TypeScript, C/C++, Scala, HTML/CSS, SQL

**Data Science:** Jax, PyTorch, TensorFlow, Pandas, ROS2

**Software Development:** Git, Linux, Docker, Azure, React, Spring, Mockito/JUnit, LaTeX

**Languages:** Czech (Native), English (C1)