



Gabriela Chavgova

Eindhoven, the Netherlands | g.k.chavgova@student.tue.nl | +31 6 81406179

gabrielachavgova.com | [linkedin.com/in/gabriela-chavgova](https://www.linkedin.com/in/gabriela-chavgova) | github.com/chavgova

Education

Eindhoven University of Technology (TU/e), Bachelor of Science in Computer Science and Engineering 2022-2025

- GPA: 7.5/10; program fully in English
- Honor Academy student – High Tech Systems track

Additional courses, Bulgarian Ministry of education 2019-2022

- “IT Career” professional course with diploma (C#, Databases, OOP, Data structures, Pascal)
- Software University - Certified “Python fundamentals” and “C# basics” courses

Research Experience

AI Predictive Modeling of Neuron Interactions - Honor Academy project @ TU/e 2024-2025

- conducting individual deep learning research aiming to predict neuron activity based on the activity of neighboring neurons in a group
- using Recurrent Neural Networks (RNN), Convolutional Neural Networks (CNN), Spiking Neural Networks (SNN), Dynamic Neural Networks, Hybrid models, Transformers, and comparing their effectivity for the task

Prediction of neuro-transmitted signals - Honor Academy project @ TU/e 2023-2024

- Led feature engineering, model training and evaluation in a team of 3
- analyzed single neuron data and labeled it using statistics and unsupervised ML methods (labels: spike, noise)
- built models predicting whether a neuron is going to spike in real time based on past activity with up to 90% accuracy

Mental State Recognition via Machine Learning Based on EEG Brain Signals 2022

- Collaborated with the Bulgarian Academy of Sciences for EEG data (brain activity)
- developed CNN and LSTM models recognizing the mental state of the person (happy/fearful)

QUINN AI Assistant (part of book: Digital Transformation in the Post-Information age) 2021

Research Gate: ISBN: 978-954-334-251-8

- 3D modeled and printed a robot head with mechanically moving eyes, eyebrows and mouth to express emotions
- embedded NLP and the emotion recognition algorithm (below) in a raspberry pi, creating a 3D-printed robot AI assistant recognizing and expressing emotions

AI Voice Emotion Recognition (part of Research Gate: ISBN: 978-954-334-251-8) 2020

- applied various data processing techniques and feature extraction to audio voice recordings
- used CNN to classify 8 different emotions, achieving up to 94% accuracy
- won 2nd Grand award at Regeneron ISEF 2021 (International Science and Engineering Fair in USA)

Experience

Freelance web development and support, Educational center “Academy 21 Century” 2022-now

- created a WordPress website as requested by employer
- responsible for tech support, updating information, managing databases

Scientific Mentor at Summer Research School in Informatics and Mathematics by the Bulgarian Academy of Sciences 2022-2023

- mentored 7 international students on their ML research projects (including financial predictions, biometric data classification)
- continued working with one of the students throughout the year, helping him develop his project and qualify for ISEF

Projects

Customer Satisfaction Classification of KLM Airlines and Business Analysis coursework @ TU/e 2024

- responsible developing NLP sentiment analysis for customer satisfaction classification of twitter data in a team of 6
- identified subjects of satisfaction and dissatisfaction, giving recommendations for improvement

Predicting Bank Process Sequences coursework @ TU/e 2024

- in charge of developing a model predicting bank processes based on past activity in threads in a team of 5
- used decision trees and LSTM models

RoboBuba - Arduino robot controlled wirelessly through a gyroscope glove project link 2019

- 3D modelled and printed the body of the robot; used an Arduino with additional Bluetooth module and sensors
- the glove has an ESP32, Bluetooth, gyroscope and accelerometer and measures when the user tilts their hand in a certain direction, sending movement commands in this direction to the robot in real time

X-Culture International Collaboration Project certificate 2019

- Worked 6 months with 5 international teammates on a real company's business problem
- created a business analysis report with opportunities and recommendations to the company
- we won "X-Culture best team 2019" award (1113 teams, 4799 participants, 70 countries)

Major Achievements and Conferences

- Regeneron ISEF 2021 - International Science and Engineering Fair – 2nd Grand award
- Representative of Bulgaria at MILSET Expo-Sciences Europe 2022 in Romania
- Delegate of Bulgaria at the International Swiss Talent Forum 2022
- Panelist at Conference of the Future of Europe 2022
- Presenter at "Education and Research in the Information Society Conference" 2021; Best Young Researcher Study award
- Yale Book Award Bulgaria 2021
- Innovation Science Fair 2021 – First Prize and American Psychology Association award
- XXI Student Research Conference – Institute of Mathematics and Informatics (Bulgarian Academy of Sciences), Excellent performance and medal (3 times)
- Student Scientific Session 2020, 2021 (Bulgarian Academy of Sciences) - First award (2 times)
- NASA Space Camp – international NASA camp in Turkey – principles of aerospace technology and space exploration

Skills

Languages:

- Proficient: Python, Java
- Intermediate: SQL, C#
- Beginner: C, R

Technologies:

- GitHub, MATLAB, LaTeX, MongoDB
- TensorFlow, Keras, scikit-learn
- Deep neural networks, RNN, CNN, SNN, clustering, NLP, feature extraction

- 3D modelling and printing with Fusion 360, Ultimaker Cura

- Arduino, Raspberry Pi, ESP, sensors, motors

Soft Skills:

- Agile (SCRUM), Project Management
- Problem-Solving, Analytical Thinking, Communication Skills, Presentation Skills
- Teamwork, Intercultural Work, Conflict Resolution

English - C1 | Bulgarian - Native

Hobbies and Interests

Deep Learning: Designing and experimenting with model architectures to solve real-world problems

Mentoring: Guiding younger students on scientific projects, fostering their interest in AI and Machine Learning.

Cars: Driving and maintaining the performance of my car, blending technical skills with a passion for engineering

Sports: Playing tennis and table tennis regularly to improve focus and fast thinking

Traveling: Exploring diverse cultures and perspectives through solo and group adventures, enriching my global outlook