



# Tudor Ionescu

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## WORK EXPERIENCE

### KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KAUST) – THUWAL, SAUDI ARABIA

#### VISITING STUDENT RESEARCHER – TRUSTWORTHY AUTONOMOUS VEHICLES ARCHITECTURE – 17/07/2025 – CURRENT

- Researching the **Savvy AV architecture** with focus on safety-critical decision-making.
- Exploring **LiDAR-IMU SLAM mapping** and **3D object detection** for degradation-aware navigation.
- Studying **Time-aware Predictive Quality Degradation (TPQD)** and **Dynamic Neural Networks** for adaptive inference.
- Analyzing AV incidents to identify failure causes and guide architectural design.

### FRAUNHOFER IDMT – OLDENBURG, GERMANY

#### INTERN – MACHINE LEARNING & SOFTWARE ENGINEERING – 01/09/2024 – 15/12/2024

- Optimized a **CRNN model** for bicycle bell detection in autonomous driver assistance systems.
- **Quantized** the model to reduce computational complexity and memory requirements.
- Prepared the model for deployment on an **XMOS embedded platform**.
- Evaluated model performance in terms of **accuracy, latency, and memory footprint**.

### GROOVE RECORDS HQ – BRASOV, ROMANIA

#### INTERN - MUSIC PRODUCER – 14/04/2021 – 14/08/2021

- Work closely with music producers, composers and sound engineers and participate in their daily mixing and mastering sessions for new client projects.
- Hands-on experience with various music programs such as Cubase and Ableton Live.
- Assist with voice recordings and instrumental recordings.
- Assist with music research.
- Manage studio supplies, equipment and inventory.

### DEUTSCHES JUGENDFORUM KRONSTADT – BRASOV, ROMANIA

#### EVENT ASSISTANT AT THE "HONTERUSGALA" – 28/12/2018 – 28/12/2018

### SACELE TOWN HALL – SACELE, ROMANIA

#### EVENT ASSISTANT AT THE "MOUNTAIN SPORTS FESTIVAL" – 19/10/2018 – 21/10/2018

### CULTURAL ASSOCIATION FANZIN – BRASOV, ROMANIA

**Business or Sector** Arts, entertainment and recreation

#### EVENT ASSISTANT AT THE "COMEDY WEEK" – 26/05/2018 – 03/06/2018

## EDUCATION AND TRAINING

01/09/2021 – 12/03/2025 Oldenburg, Germany

### HEARING TECHNOLOGY AND AUDIOLOGY (B.ENG.) Jade Hochschule

- Design and analysis of acoustic systems
- Signal processing and optimization
- Development and implementation of audio algorithms
- Programming skills in relevant languages (e.g. MATLAB, Python)
- Experience with audio measurement technology and psychoacoustic test procedures
- Application of digital signal processing techniques in audio technology
- Knowledge of psychoacoustics and understanding of human hearing processes
- Development and fitting of hearing systems and audiological devices
- Experience with the evaluation and application of hearing tests and audiological assessment methods

**Website** <https://www.jade-hs.de/tgm/studium/ha/>

07/09/2019 – 21/09/2019 Berlin, Germany

### ERASMUS + SCHOLAR European Commission

The aim of this Erasmus+ Project was to increase and develop the interest for theater in youth.

- international experience and communication
- cultural exchange
- significant leadership and networking abilities

**Link** <https://adz.ro/meinung-und-bericht/artikel-meinung-und-bericht/artikel/bildende-kunst-musik-literatur-und-theater-sollen-als-zentrale-kategorien-der-identitaetsbildung-wahrgenommen-werden>

15/09/2009 – 15/06/2021 Brasov, Romania  
**SCHOOL** Colegiul National "Johannes Honterus"

- World Literature
- German Language and Literature
- Social Sciences
- Entrepreneurship and Economics

**Address** Curtea Johannes Honterus nr.3, Brasov, Romania | **Field of study** Generic programmes and qualifications

## ● LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN** | **GERMAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	C1	C1	C1	C1	C1
<b>GERMAN</b>	C1	C1	C1	C1	C1
<b>SPANISH</b>	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

## ● SKILLS

Machine Learning (DNN, CNN, RNN) | Python | PyTorch | MATHLAB | Git (Git Hub, Git Lab) | Visual Studio Code | Numpy, Scipy, sci-kit learn, Pandas, Matplotlib, Soundfile, Sounddevice | PySide6 | Microsoft Office | Microsoft Excel | Microsoft Word | Google Drive | Microsoft Powerpoint | Cubase | FLstudio | CapCut Video Editor | JSON | CASSY Lab | LTSpice (Advanced) | Overleaf & LaTeX | DAW Software( Ableton, ProTools, Apple Logic Pro) | REGEX (Python) | SQL | CSS & HTML | zapier | AI automation | Model Context Protocol (MCP)

## ● DRIVING LICENCE

**Driving Licence:** AM

**Driving Licence:** B1

**Driving Licence:** B

## ● PROJECTS

03/12/2023 – 31/01/2024

### Audio Technology DrumNet

The audio engineering project DrumNet, which I developed in 2024 as part of an audio technology programming assignment, uses advanced Python techniques to classify and process drum sounds. This application uses machine learning to identify different drum samples such as kick, hi-hat and snare. It then applies specific audio processing techniques based on the classification, including bass filtering and dynamic compression.

20/09/2023 – 31/01/2024

### Neural Networks with PyTorch

In collaboration with Dr.-Ing. Uwe Simmer, we developed a neural network with PyTorch to reduce the echo problem during video conferences. Our goal was to improve audio quality through noise suppression. The first approach aimed at echo reduction in a specific room by estimating and eliminating the echo signal. We then expanded the project to include an echo canceller in the frequency domain that can react flexibly to different acoustic situations. Through intensive training with extensive audio material, our model learned to recognize and adapt to unknown scenarios, significantly improving the quality of video conferencing.

16/05/2023 – 20/06/2023

### Public Transport Route Planner

As part of our project, we have developed an interactive tool for route planning in public transport networks. Using data from <https://gtfs.de/>, it makes it possible to determine optimal routes between stations in the German public transport network. The program is based on Python and integrates libraries such as Pandas for data processing, Numpy for numerical operations, Datetime for time data and Rapidfuzz for processing user input. The core functions are optimal route planning across all means of public transport in Germany, the display of transfer stations and the use of the A\* search algorithm to determine the shortest route between stations.

04/04/2023 – 13/06/2023

## **Timetable and map of Deutsche Bahn**

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We have developed an interactive tool for displaying timetables and maps of the German rail network that processes complex data sets using Pandas and provides a user-friendly GUI via PySide6. Despite initial challenges in data processing and GUI optimization, our application now enables detailed route planning with interactive map features such as station selection and zoom. The project required a significant amount of time beyond what was planned, but provided deep insights into data processing, GUI development and debugging. It illustrates our successful handling of extensive data and complex software development requirements.

## **HOBBIES AND INTERESTS**

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### **Music**

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Music is one of my deepest passions, which manifests itself both in singing and in playing various instruments. My skills include playing acoustic and electric guitar, piano, cajon, ukulele and recorder. I particularly enjoy using my loop station to explore new musical techniques and expand my creativity in music.

### **Sport**

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Sport is one of my greatest passions and an essential part of my everyday life. I regularly work on my strength and endurance at the gym, while kickboxing gives me discipline and confidence. These activities not only give me the opportunity to challenge myself physically, but also to develop mental strength.

## **OTHER**

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26/11/2017 – CURRENT

### **Member of the German Youth Forum**

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