MAXIME BURCHI

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RESEARCH INTERESTS

I am a PhD student in the Computer Vision Laboratory at the University of Würzburg, advised by Prof. Radu Timofte. My research focuses on learning World Models for Planning. I also have research experience in Automatic Speech Recognition (ASR) and Lip Reading.

EDUCATION

Würzburg University — February 2022 - present
Ph.D. in Computer Science, advised by Prof. Radu Timofte — Würzburg, Germany

ESIEE Paris, Université Gustave Eiffel — September 2018 - July 2021
Master of Engineering in Computer Science — Noisy-le-Grand, France
Machine Learning and Embedded Systems

ESIEE Paris, Université Gustave Eiffel — September 2016 - June 2018
Classes Préparatoires, Scientific Preparatory Classes — Noisy-le-Grand, France

WORK EXPERIENCE

Deep Learning Intern — February 2023 - August 2023
Nvidia, *Advised by Krishna C. Puvvada* — Paris, France

· Performed research on audio-visual speech recognition.
· Creation of french ASR dataset, training and evaluation of speech recognition models.
· Developed an audio-visual ASR model for robust multilingual speech recognition.
· Submitted and presented research work at ICASSP 2024 conference.

Research Intern, Automatic Speech Recognition (ASR) — February 2021 - July 2021
Orange Labs, *Advised by Valentin Vielzeuf* — Rennes, France

· Performed research to reduce end-to-end learning methods complexity in the area of ASR.
· Implemented, trained and evaluated state-of-the-art architectures using PyTorch.
· Developed an efficient architecture design inspired from previous works done in ASR and vision.
· Submitted research work to ASRU 2021 conference.

PUBLICATIONS

Maxime Burchi, Radu Timofte. Accurate and Efficient World Modeling with Masked Latent Transformers. ICML 2025, Vancouver, Canada.

Maxime Burchi, Radu Timofte. Learning Transformer-based World Models with Contrastive Predictive Coding. ICLR 2025, Singapore.

Maxime Burchi, Radu Timofte. MuDreamer: Learning Predictive World Models without Reconstruction. 2024.

Maxime Burchi, Krishna C. Puvvada, Jagadeesh Balam, Boris Ginsburg, Radu Timofte. Multilingual Audio-Visual Speech Recognition with Hybrid CTC/RNN-T Fast Conformer. ICASSP 2024, Seoul, South Korea.

Maxime Burchi, Radu Timofte. Audio-Visual Efficient Conformer for Robust Speech Recogntion. WACV 2023, Waikoloa, Hawaii.

Maxime Burchi, Valentin Vielzeuf. Efficient Conformer: Progressive Downsampling and Grouped Attention for Automatic Speech Recognition. ASRU 2021, Cartagena, Colombia.

SKILLS

Software	C/C++, Python, PyTorch, TensorFlow, Java, Shell script, Git, Docker
Spoken Languages	French (native), English (fluent)

SCHOOL PROJECTS

Mechanical automation of two music instruments: Pan Flute and Xylophone

- Created a mechanical orchestra controlled by microcontroller units connected to an iOS app.
- Designed and built xylophone playing machine and prototypes.
- Developed embedded C code on TI MCUs and electrical circuit to control motors.
- Received 2019 ESIEE Paris JDP Award by Texas Instruments.
  See xylophone playing demonstration here