Offer #2024-07874

PhD Position F/M PhD Position Computer Vision / Deep Learning: Video Generation

Contract type: Fixed-term contract
Level of qualifications required: Graduate degree or equivalent
Function: PhD Position

About the research centre or Inria department

The Inria centre at Université Côte d'Azur includes 42 research teams and 9 support services. The center's staff (about 500 people) is made up of scientists of different nationalities, engineers, technicians and administrative staff. The teams are mainly located on the university campuses of Sophia Antipolis and Nice as well as Montpellier, in close collaboration with research and higher education laboratories and establishments (Université Côte d'Azur, CNRS, INRAE, INSERM ...), but also with the regional economic players.

With a presence in the fields of computational neuroscience and biology, data science and modeling, software engineering and certification, as well as collaborative robotics, the Inria Centre at Université Côte d'Azur is a major player in terms of scientific excellence through its results and collaborations at both European and international levels.

Context

Inria, the French National Institute for computer science and applied mathematics, promotes “scientific excellence for technology transfer and society”. Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

Team

The STARS research team combines advanced theory with cutting edge practice focusing on cognitive vision systems.

Team website: https://team.inria.fr/stars/

Assignment

The Inria STARS team is seeking for a Ph.D. researcher with strong background in computer vision, deep learning and machine learning.

The candidate is expected to conduct research related to generative models, including the development of computer vision algorithms for image and video generation.

Main activities

Context:

Generative models have witnessed increased interest from academia and industry, due to exceptional capacity in generating highly realistic images. Videos signify more complex data, due to the additional temporal dimension. While some research works showed early results in video generation, there are many open questions in the field.

1. Model architecture

The thesis firstly will investigate, how to design model architectures for video generation.

2. 3D-aware generation

Learning 3D-aware models from 2D data has become a popular research topic in image generation. In this thesis, we will go one step further in this direction to explore novel view synthesis in video generation.
3. Generalizability

Finally, we will aim to design a universal model which is able to generate videos across categories. Most of current models focus on generating single category (e.g., faces, sky...). Currently, there is no models, which are able to generate complex multi-category videos (e.g. Kinetics-600). We plan to increase the complexity of video generative models and design a large-scale video generative model. The objective is to study whether big generative models are able to capture the distribution of complex video datasets and create semantic meaningful videos.

Skills

Candidates must hold a Master degree or equivalent in Computer Science or a closely related discipline by the start date.

The candidate must be grounded in the basics of computer vision, have solid mathematical and programming skills.

Preferably in Python, OpenCV, deep learning framework Pytorch or Tensorflow.

The candidate must be committed to scientific research and strong publications.

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Contribution to mutual insurance (subject to conditions)

Remuneration

Gross Salary per month: 2100€ brut per month (year 1 & 2) and 2190€ brut per month (year 3)

General Information

- Theme/Domain: Vision, perception and multimedia interpretation
- Town/city: Sophia Antipolis
- Inria Center: Centre Inria d'Université Côte d'Azur
- Starting date: 2024-08-01
- Duration of contract: 3 years
- Deadline to apply: 2024-07-23

Contacts

- Inria Team: STARS
- PhD Supervisor: Dantcheva Antitza / antitza.dantcheva@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

Warning: you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.

Instruction to apply

Defence Security:

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.
Recruitment Policy:
As part of its diversity policy, all Inria positions are accessible to people with disabilities.