Postdoc Position on Computer Vision and Deep Learning:

Automatic Editing of Actor’s Facial Performance Videos.

The Computational Media Lab (CML) at KAIST, South Korea, has one open postdoc position to work on Computer Vision and Deep Learning, in the context of automatic editing of actor’s facial performance videos and face reenactment. This research project will be conducted in collaboration with Korea’s leading visual effects (VFX) studio.

Prof. Jean-Charles Bazin: [http://cml.kaist.ac.kr/pres_jcbazin.html](http://cml.kaist.ac.kr/pres_jcbazin.html)

CML: [http://cml.kaist.ac.kr/](http://cml.kaist.ac.kr/)


**Salary, terms and benefits:**

Salary: 4.5 millions KRW per month (around 4,000 US$).
Contract: one year (renewable, under conditions).
Starting date: September 2018 (flexible until December 2018).
Vacation: 20 days per year.

KAIST provides a wide range of benefits including sports facilities (gyms, swimming pool, tennis courts, sauna, etc), accommodation, restaurants with various choices, on-campus clinic, and many more.

Workplace: Computational Media Lab (CML) at KAIST, Daejeon, South Korea. Daejeon is the fifth largest city of South Korea with a population of over 1.5 million. Daejeon is known as the Silicon Valley of Korea, and hosts several public and private R&D centers, such as Samsung and LG.

Accommodation ranges from 200$ (on-campus dorm) to around 1000$ (large family-apartment with 3 bedrooms outside the campus) per month.

Income tax is relatively low in Korea (especially compared to US and Europe), and Korea has an excellent healthcare system (KAIST even has an on-campus clinic).
**Job description:**

1. You will conduct research on leveraging computer vision and deep learning techniques for automatic editing of actor’s facial performance videos and face reenactment. Possible research topics include:
   - Automatic synchronization of facial performance videos captured at the same time (linear sync) and at different times (non-linear sync, see [FaceDirector] and [ActionSnapping]).
   - Automatic video stabilization dedicated to facial performance videos.
   - Face reenactment in 2D and 3D (see [HeadOn] and [Face2Face]).
   - Investigation of deep learning for multi-modal data (audio+video).
   - Investigate visual editing (e.g. face manipulation) but also sound/voice manipulation.

2. This research project will be conducted in collaboration with Korea's leading visual effects (VFX) studio, with state-of-the-art equipment and cutting-edge technology.

3. You will be encouraged to publish in major venues of computer vision (CVPR, ICCV, ECCV, TPAMI, IJCV), graphics (SIGGRAPH, TOG, TVCG) and machine learning (ICML, NIPS).

4. You will have the opportunity to co-supervise interns, BS students, MS students and PhD students.

**References:**
- "FaceDirector: Continuous Control of Facial Performance in Video", ICCV, 2015.
- "ActionSnapping: Motion-based Video Synchronization", ECCV, 2016
About KAIST:
KAIST is a world-leading public research university located in Daejeon, South Korea. KAIST is recognized as a world-class research university. For example, KAIST is ranked 14th in the world (QS World University Rankings). KAIST is also ranked 6th in the world and 1st within Asia in the World’s Most Innovative Universities (Reuters). It is also ranked 5th of the world among the universities that are aged 50 years or under (The Times Higher Education Rankings). KAIST is also a global university: more than 80% of major courses are conducted in English, and international students from more than 70 different countries come to study at KAIST.

![Picture of KAIST campus.](image)

About CML:
Website: [http://cml.kaist.ac.kr/](http://cml.kaist.ac.kr/)
The Computational Media Lab (CML) at KAIST is an interdisciplinary research group dedicated to the analysis, processing and generation of media contents with computer algorithms. Examples of our research topics include video editing, AI (deep learning) for visual data, 3D telepresence, augmented/virtual reality, and audiovisual media processing. We conduct research in the fields of computer vision, computer graphics, robotics, machine learning (deep learning) and multimedia. We invent novel algorithms and create exciting new applications. We have collaborations and connections with several universities (MIT, ETH Zurich, NTU Singapore) and companies (Disney Research, Adobe Research, Samsung), as well as startups. We publish papers in the premier venues of computer vision (TPAMI, CVPR, ECCV and ICCV), graphics (TOG, SIGGRAPH, and SIGGRAPH Asia) as well as robotics (IJRR).

The director of CML is Prof. Jean-Charles Bazin. Before joining KAIST, he was an Associate Research Scientist at Disney Research Zurich, and at the same time an adjunct lecturer at ETH Zurich (2014-2016). Before joining Disney Research, he was a Postdoc and a Senior Researcher at the Computer Graphics Laboratory (Prof. Markus Gross) and Computer Vision and Geometry Group (Prof. Marc Pollefeys) at ETH Zurich (2011-2014). During this time, he was a member of the Being There Center and was working in collaboration with Disney Research Zurich. Before working at ETH, he was a Postdoctoral Fellow at Computer Vision Lab of Prof. Katsushi Ikeuchi, Tokyo, Japan (2010/2011). He received an MS in Computer Science at Universite de Technologie de Compiègne, France (2006) and a PhD in Electrical Engineering at KAIST, South Korea (2011).
**Position requirements:**

The candidate should have:
- A PhD in computer science, engineering, mathematics, or other relevant discipline (if thesis submission is pending, state expected submission date).
- A solid background in deep learning (especially CNN, RNN, LSTM and GAN) and/or computer vision (especially 3D reconstruction from multiple images and multi-view geometry).
- Experience with OpenCV.
- Experience in computer graphics is a plus (for example face manipulation, blendshapes, and animation).
- A solid publication record in top-tier venues of computer vision (CVPR, ICCV, ECCV, TPAMI, IJCV), graphics (SIGGRAPH, TOG, TVCG,) and/or machine learning (ICML, NIPS).

**Application:**

If you want to apply or have any queries about the position, please contact Prof. Jean-Charles (Director of CML) at bazinjc@kaist.ac.kr. Please provide:
- CV with the list of publications.
- A brief research statement (experience and interests).
- Letter of recommendation (not mandatory, but appreciated).

The applications will start being reviewed on 20 August 2018 and will continue until a successful candidate is selected.