

Valentin Gabeur

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Work Experience

Meta AI

POSTDOCTORAL RESEARCHER

San Francisco, USA

Apr 2022 - Present (1 year)

- Developed and trained **SAM 2**, a next-generation model for interactive **Video Object Segmentation** and **Image Segmentation**. **SAM 2** obtains a **better accuracy**, runs at **6x the speed** and requires **3x less interactions** than the previous state-of-the-art.
- Designed the specifications and supervised the quality of SA-V, a **large video segmentation dataset** produced by **hundreds of human annotators** over several months.
- Prepared the **public release** of the dataset, model weights, code, paper and demo.

Google AI

STUDENT RESEARCHER

Grenoble, France

Feb 2019 - Feb 2022 (3 years)

- Developed a novel pre-training approach and a cross-modal architecture for the task of **text-to-video** retrieval. Obtained **state-of-the-art** results on 6 public datasets and won **1st place in the CVPR 2020 Video Pentathlon** (a video retrieval competition).
- Solved **large-scale** parallelism engineering challenges to train models on 200TB (15 years) of videos with 128 TPU v3 cores using the Jax framework. Ran experiments on both Google Cloud Platform (GCP) and Google internal production cluster.
- My research led to **publications** at **ECCV-20**, **WACV-22** and **INTERSPEECH-22** with **open-sourced** releases.

Inria

RESEARCH INTERN

Grenoble, France

Apr 2018 - Jan 2019 (10 months)

- Generated a semi-synthetic **dataset** of 3D captures in a virtual environment.
- Proposed a parameter-free **3D shape representation** for estimating human meshes from an image. **Publication** at **ICCV-19**.

Addition Manufacturing Technologies

PROJECT MANAGER

Toulouse, France

Apr 2016 - Jul 2017 (1.5 year)

- Responsible for the development of a new robotic tube bender.
- Study and design of innovative engineering concepts. Parts machining and assembly follow-up at subcontractors.
- Installation at customers facility, after-sales support. Coordination of US & Europe teams.

Addition Manufacturing Technologies

MECHANICAL ENGINEER

San Diego, USA

Apr 2013 - Mar 2016 (3 years)

- Assembly and setup of robotic tube-bending cells. Optimization of machine design. Kuka robots programming.
- Technical support to sales. Presentation and promotion of the equipments at Fabtech shows.

Flabeg Holding GmbH

MECHANICAL ENGINEER

Shanghai, China

Oct 2011 - Oct 2012 (1 year)

- Designed new equipment for the production of automotive mirrors.

Education

Grenoble-Alpes University / Inria

PH.D. IN COMPUTER SCIENCE

Grenoble, France

Feb 2019 - Oct 2022

- Thesis subject: Multi-modal learning for video understanding.
- Supervisors: Cordelia Schmid, Karteek Alahari.
- Computer vision, Natural language processing, Machine learning.

Paul-Sabatier University

M.Sc. IN ROBOTICS: DECISION AND CONTROL

Toulouse, France

2017 - 2018

- Machine-learning, Optimisation & Estimation, 3D Perception, Industrial & Mobile robotics. - **Rank 1/18**

ICAM

M.Sc. IN ENGINEERING

Lille, France

2006 - 2011

- Mechanical engineering, Automation, Computer science, Manufacturing, Project management. - **Rank 1/96**

Skill and tools

- **Programming:** Python, C/C++, Matlab.
- **Deep Learning:** PyTorch, Jax, Tensorflow.
- **Tools:** Linux, VSCode, Tmux, Git, LaTeX, AWS, GCP, Blender, Solidworks.
- **Languages Spoken:** French (native), English (fluent), Spanish (fluent), Chinese (basics).

Publications

 scholar.google.com

[1] **SAM 2: SEGMENT ANYTHING IN IMAGES AND VIDEOS.**

Nikhila Ravi*, **Valentin Gabeur***, Yuan-Ting Hu*, Ronghang Hu*, Chaitanya Ryali*, Tengyu Ma*, Haitham Khedr*, Roman Rädle*, Chloe Rolland, Laura Gustafson, Eric Mintun, Junting Pan, Kalyan, Vasudev Alwala, Nicolas Carion, Chao-Yuan Wu, Ross Girshick, Piotr Dollár, Christoph Feichtenhofer*.

arXiv 2024

[2] **AVATAR: UNCONSTRAINED AUDIOVISUAL SPEECH RECOGNITION.**

Valentin Gabeur*, Paul Hongsuck Seo*, Arsha Nagrani*, Chen Sun, Karteek Alahari and Cordelia Schmid.

INTERSPEECH 2022

[3] **MASKING MODALITIES FOR CROSS-MODAL VIDEO RETRIEVAL.**

Valentin Gabeur, Arsha Nagrani, Chen Sun, Karteek Alahari and Cordelia Schmid.

WACV 2022

[4] **MULTI-MODAL TRANSFORMER FOR VIDEO RETRIEVAL.**

Valentin Gabeur, Chen Sun, Karteek Alahari and Cordelia Schmid.

ECCV 2020 (Spotlight)

[5] **CVPR 2020 VIDEO PENTATHLON CHALLENGE: MULTI-MODAL TRANSFORMER FOR VIDEO RETRIEVAL.**

Valentin Gabeur, Chen Sun, Karteek Alahari and Cordelia Schmid.

CVPR 2020 Video Pentathlon Challenge Workshop - 1st place

[6] **MOULDING HUMANS: NON-PARAMETRIC 3D HUMAN SHAPE ESTIMATION FROM SINGLE IMAGES.**

Valentin Gabeur, Jean-Sebastien Franco, Xavier Martin, Cordelia Schmid and Gregory Rogez.

ICCV 2019