

Mathis Petrovich

PhD Student



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Summary I am an ELLIS PhD student in the IMAGINE computer vision team of École des Ponts ParisTech (ENPC) and in the Perceiving Systems Department of Max Planck Institute for Intelligent Systems (MPI-IS). I am co-advised by Gül Varol (ENPC) and Michael J. Black (MPI).

Research Experience

2020 – present: PhD student, ENPC/MPI, France/Germany

Subject: Controllable human motion synthesis via generative models

Advisors: Gül Varol and Michael J. Black

2023: Research Intern, NVIDIA, Switzerland

5.5 months

Subject: 3D human motion generation from textual description

Manager: Sanja Fidler

2019 - 2020: Research Intern, RIKEN AIP, University of Kyoto, Japan

9 months

Subject: Machine learning and optimal transport

Advisor: Makoto Yamada

2019: Research Intern, DxO Labs, France

6 months

Subject: Semantic segmentation and image matting

Advisor: Wolf Hauser

2018: Research Intern, Carnegie Mellon University, United States

5 months

Subject: Object tracking in videos

Advisor: Martial Hebert

2017: Research Intern, LIF, France

2 months

Subject: Correction strategy for natural language parser

Advisor: Alexis Nasr

Education

2020 - present: ENPC/MPI, PhD student

France/Germany

Controllable human motion synthesis via generative models

2016 - 2020: École Normale Supérieure (ENS) Paris-Saclay, MSc

Paris, France

Research engineering school, theoretical and applied computer science

- 2018 - 2019: ENS Paris-Saclay, Master 2 / Master MVA: machine learning and computer vision
- 2017 - 2018: ENS Paris-Saclay, Master 1 / Master of research in theoretical computer science (MPRI)
- 2016 - 2017: Diderot University, BSc / Theoretical computer science

2014 - 2016: Lycée Masséna, MPSI/MP*

Nice, France

Preparation course for exams to enter French engineering schools

Academic Activities

Publications

- **2024, arXiv: Mathis Petrovich**, Or Litany, Umar Iqbal, Michael J. Black, Gül Varol, Xue Bin Peng, Davis Rempe
STMC: Multi-Track Timeline Control for Text-Driven 3D Human Motion Generation.
- **2023, ICCV: Mathis Petrovich**, Michael J. Black, Gül Varol
TMR: Text-to-Motion Retrieval Using Contrastive 3D Human Motion Synthesis.

- **2023, ICCV:** Nikos Athanasiou*, **Mathis Petrovich***, Michael J. Black, Gül Varol
SINC: Spatial Composition of 3D Human Motions for Simultaneous Action Generation.
- **2022, 3DV:** Nikos Athanasiou, **Mathis Petrovich**, Michael J. Black, Gül Varol
TEACH: Temporal Action Composition for 3D Human.
- **2022, ECCV (Oral):** **Mathis Petrovich**, Michael J. Black, Gül Varol
TEMOS: Generating diverse human motions from textual descriptions.
- **2021, ICCV:** **Mathis Petrovich**, Michael J. Black, Gül Varol
ACTOR: Action-Conditioned 3D Human Motion Synthesis with Transformer VAE.
- **2022, ECML:** **Mathis Petrovich***, Chao Liang*, Ryoma Sato, Yanbin Liu, Yao-Hung Hubert Tsai, Linchao Zhu, Yi Yang, Ruslan Salakhutdinov, Makoto Yamada
FRONT: Feature Robust Optimal Transport for High-dimensional Data.
- **2020, IJCNN:** Dinesh Singh, Héctor Climente-González, **Mathis Petrovich**, Eiryo Kawakami, Makoto Yamada
FsNet: Feature Selection Network on High-dimensional Biological Data.
- **2020, arXiv:** **Mathis Petrovich**, Makoto Yamada
FALL: Fast local linear regression with anchor regularization.
- **2020, ICMEW:** Abhishek Goswami, **Mathis Petrovich**, Wolf Hauser, Frederic Dufaux
Tone Mapping Operators: Progressing Towards Semantic-Awareness.

Reviewing

- Eurographics 2024
- International Conference on 3D Vision (**3DV**) 2024
- International Conference on Computer Vision (**ICCV**) 2023
- **SIGGRAPH** 2023
- Computer Vision and Pattern Recognition (**CVPR**) 2023 (**Outstanding Reviewer**), 2024
- International Journal of Computer Vision (**IJCV**) 2022, 2023
- Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**) 2022, 2023
- European Conference on Computer Vision (**ECCV**) 2022
- Computers & Graphics 2021

Teaching

- 2021 - 2024: ENS Paris-Saclay, *Teaching Assistant*, M2 (Master MVA)
Object recognition and computer vision (RecVis)
- 2022 - 2023: ENPC Engineering school, *Project supervisor*
Research project on computer vision
- 2020 - 2021: ENPC, *Teacher*, L3 (Bachelor)
Introduction to programming, in C++ (1PROG)

Recent open-source repositories




 Mathux/TMR	135 ★	9 📄
 Mathux/TEMOS	325 ★	21 📄
 Mathux/ACTOR	342 ★	49 📄

Miscellaneous

Research interests

- Computer vision
- Machine learning
- Generative models (VAE, diffusion)
- 3D human motion modeling
- Optimal transport

Languages

-  **French:** Native speaker
-  **English:** C1 Level (IELTS Band 7)
-  **German:** A2

References

- **Gül Varol:** gul.varol@enpc.fr
- **Michael J. Black:** black@tuebingen.mpg.de