

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).

Google Scholar <https://scholar.google.com/citations?user=WUKF2ZwAAAA>

Research Experience

2020 – 2024: PhD student, ENPC/MPI, France/Germany

Subject: Natural Language Control for 3D Human Motion Synthesis

Advisors: Gül Varol and Michael J. Black

2023: Research Intern, NVIDIA, Switzerland

5.5 months

Subject: Multi-Track Timeline Control for Text-Driven 3D Human Motion Generation

Advisors: Xue Bin Peng and Davis Rempe

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 - 2024: ENPC/MPI, PhD student

France/Germany

Natural Language Control for 3D Human Motion Synthesis

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
FROT: 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
TMO: Tone Mapping Operators: Progressing Towards Semantic-Awareness.

Reviewing

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




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|--|-------|------|
|  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