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). My PhD topic is to generate realistic and diverse human body motion in a controllable way (given labels or text instructions).

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

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 natual language parser
Advisor: Alexis Nasr

Education

2020 - present: ENPC/MPI, PhD student *France/Germany*
Controllable 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 *Nice, France*
Preparation course for exams to enter French engineering schools

Academic Activities

Publications

- **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 PKDD**: **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, MLCB**: 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

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2022
- European Conference on Computer Vision (ECCV) 2022
- Computers & Graphics 2021

Teaching

- 2021 - 2022: ENS Paris-Saclay, *Teaching Assistant*, M2 (Master MVA)
  Object recognition and computer vision (RecVis)
- 2020 - 2021: ENPC, *Teacher*, L3 (Bachelor)
  Introduction to programming, in C++ (1PROG)

Presentations

- 10/2022: **ECCV**, Israel, oral presentation
- 09/2022: **ECML PKDD**, France, presentation
- 05/2022: **MPI**, Germany, PS seminar
- 04/2022: **ENPC Retreat**, France, tutorial
- 03/2022: **A3SI**, France, PhD students' seminar
- 10/2021: **ICCV**, Virtual, poster
- 09/2021: **ELLIS Doctoral Symposium**, Germany, poster
- 09/2021: **Riken AIP**, Virtual, unit seminar
- 06/2021: **MSTIC doctoral school**, Virtual, Doctoral day

Open-source repositories

Mathux/TEMOS	115 ★	3 ⑂
Mathux/ACTOR	207 ★	28 ⑂
Mathux/FROT		
Mathux/FALL		

Miscellaneous

Research interests

- Computer vision
- Machine learning
- 3D human motion
- Generative models
- Optimal transport
- Local linear regression

Languages

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

References

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