Mathis Petrovich

Email:
mathis.petrovich@enpc.fr

Website:
m.petrovich.fr

Github:
Mathux

Phone :
(+33)6 66 65 84 19

LinkedIn:
mathis-petrovich

Mathis Petrovich

PhD Student – Controllable human motion synthesis

Summary I am a ELLIS PhD student at the École des Ponts (ENPC) in the computer vision team IMAGINE (LIGM, École des Ponts, Univ Gustave Eiffel, CNRS) and at the Max Planck Institute for Intelligent Systems (MPI) in the Perceiving Systems department. I am advised by both 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). I am interested in a lot of area of research, from optimal transport, kernel methods to image processing, computer vision and human motions.

Positions

2020 – present : *PhD student*, LIGM (ENPC) - Perceiving Systems (MPI)
Subject: Controllable human motion synthesis via generative models
Advisors: Gül Varol and Michael J. Black
Location: France/Germany

2019 - 2020 : *Research Intern*, RIKEN AIP, University of Kyoto *9 months*
Subject: Machine learning and optimal transport
Advisor: Makoto Yamada
Location: Japan

2019 : *Research Intern*, DxO Labs *6 months*
Subject: Semantic segmentation and image matting
Advisor: Wolf Hauser
Location: France

2018 : *Research Intern*, Carnegie Mellon University *5 months*
Subject: Object tracking in videos
Advisor: Martial Hebert
Location: United States

2017 : *Research Intern*, LIF *2 months*
Subject: Correction strategy for natual language parser
Advisor: Alexis Nasr
Location: France

Education

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 *Paris, France*
Master MVA: machine learning and computer vision

2017 - 2018 : ENS Paris-Saclay, Master 1 *Paris, France*
Master of research in theoretical computer science (MPRI)

2016 - 2017 : Diderot University, Bachelor degree *Paris, France*
Theoretical computer science

2014 - 2016 : Lycée Masséna *Nice, France*
Preparation course for exams to enter French engineering schools

2011 - 2014 : Lycée Saint-Louis *Gignac-la-Nerthe, France*
High School Diploma (Baccalauréat) with highest honours, specialised in Sciences

Mathis Petrovich

Email:
mathis.petrovich@enpc.fr

Website:
m.petrovich.fr

Github:
Mathux

Phone :
(+33)6 66 65 84 19

LinkedIn:
mathis-petrovich

Research Experience

Publications

- **2022, ECCV** : **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, 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, *Course Instructor*, L3 (Bachelor)
  C++ teaching

Open-source repositories

Mathux/TEMOS	115 ★	3
Mathux/ACTOR	202 ★	27
Mathux/FROT		
Mathux/FALL		

Talks in Conferences and Invited Talk

oral tutorial poster

2022

- **MPI, Germany**, PS seminar
  TEMOS: Generating diverse human motions from textual descriptions.
- **ENPC Retreat**, La Turballe, France, tutorial
  Tips and tricks for PhD Students
- **A3SI, France**, PhD students' seminar
  TEMOS: Generating diverse human motions from textual descriptions.

2021

- **ICCV**, Virtual, poster
  ACTOR: Action-Conditioned 3D Human Motion Synthesis with Transformer VAE.
- **ELLIS Doctoral Symposium**, Germany, poster
  ACTOR: Action-Conditioned 3D Human Motion Synthesis with Transformer VAE.
- **Riken AIP, Kyoto University**, Virtual, invited talk
  ACTOR: Action-Conditioned 3D Human Motion Synthesis with Transformer VAE.
- **MSTIC doctoral school**, Virtual, Doctoral day
  ACTOR: Action-Conditioned 3D Human Motion Synthesis with Transformer VAE.

Mathis Petrovich

Email:
mathis.petrovich@enpc.fr

Website:
m.petrovich.fr

Github:
Mathux

Phone :
(+33)6 66 65 84 19

LinkedIn:
mathis-petrovich

Skills, Interests and Personal

Machine learning

- Deep learning
- Generative models
- Human body models
- Optimal transport
- Local linear regression

Computer skills

- Python
- C++
- OCaml
- slurm (working on a cluster)
- ssh (working on a server)
- Git
- Linux
- LaTeX
- Blender

Deep Learning Stack

- PyTorch
- PyTorch Lightning
- Hydra
- TensorBoard
- Weights & Biases

Languages

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

International experience

- **2022-2023:** Tübingen, Germany
- **2019-2020:** Kyoto, Japan
- **2018:** Pittsburgh, US

Personal interests

- Rubik's cube
- Magic tricks
- Hiking
- Home automation

Soft skills

- Fast Learner
- Communication
- Problem solving
- Entreprenarial spirit
- Curious
- Creative