Cornelis Lelylaan 3
Amsterdam, Netherlands
1062HD

Dimitrije Antić

+31 61 068 7024
antic.dimi@gmail.com
Personal website
LinkedIn profile
Github profile

Education

PhD. in Computer Vision and Machine Learning — **University of Amsterdam** — **March 2023 – exp. March 2027**

- Supervised by Prof. Tzionas and Prof. Gevers.
- Working on topics of 3D reconstruction of humans in interaction from images.

MSc. in Machine Learning — **Eberhard Karls Univ. of Tübingen** — **October 2020 – February 2023**

- Graduate Coursework: Deep Learning, Computer Vision, Self-Driving Cars, Reinforcement Learning, Deep Learning for Vision and Graphics, Probabilistic ML, Statistical ML, Mathematics for ML, Data Compression with Deep Probabilistic Models, ML in Renewable Energy Systems, Game Theory in Multi-Agent Systems, Data Mining, Data Literacy
- Master Thesis: *Interactive 3D Clothing Segmentation* supervised by Garvita Tiwari, Dr. Riccardo Marin and Prof. Gerard Pons-Moll.

BSc. in Informatics — **University of Belgrade** — **October 2016 – June 2020**

- BSc. in Informatics with Minor in Mathematics.
- 4 years bachelors program in Informatics with a focus on mathematical foundations of computer science.

High School Diploma — **Mathematical Grammar School** — **October 2012 – June 2016**

- High school specialized for highly gifted students in the fields of Mathematics, Physics and Informatics.
- Website: https://www.mg.edu.rs/

Peer-Reviewed Publications

- Garvita Tiwari, **Dimitrije Antic**, Jan Eric Lenssen, Nikolaos Sarafianos, Tony Tung, Gerard Pons-Moll. ”Pose-NDF: Modelling Human Pose Manifolds with Neural Distance Fields”. In *European Conference on Computer Vision (ECCV), 2022.*
- Maximilian Seitzer, Arash Tavakoli, **Dimitrije Antic**, Georg Martius. ”On the Pitfalls of Heteroscedastic Uncertainty Estimation with Probabilistic Neural Networks”. In: *10th International Conference on Learning Representations (ICLR), 2022*

Research Experience

Master’s Thesis Project — **University of Tübingen** — **September 2022 – February 2023**

Real Virtual Humans Group

- Worked on interactive clothing segmentation pipeline. We introduced a novel clothing segmentation dataset with clothing segmentation annotations. Furthermore, we utilized the proposed dataset to train the first body-aware clothing segmentation method from 3D data, which outperforms the general state-of-the-art segmentation methods. Finally, we propose an interactive tool which can be used to fine-tune the model to unseen data based on user’s feedback.
- Supervisors: Prof. Gerard Pons-Moll, Dr. Riccardo Marin and Garvita Tiwari.
- Group website: http://virtualhumans.mpi-inf.mpg.de/

Research Assistant — **University of Tübingen** — **September 2021 – March 2023**

Real Virtual Humans Group

- Worked on learning implicit human pose priors. The 3D human pose is highly complex and high dimensional data, hence poses various challenges in neural network or optimization-based pose estimation models. We proposes an implicit function based human pose prior, and show its effectiveness against VAE based pose

prior models. My main contribution was understanding the limitations of previous works, and incorporating findings to make our novel proposed neural fields based model more robust, evaluating model on different downstream tasks. The paper appeared on ECCV 2022.
- Supervisors: Prof. Gerard Pons-Moll and Garvita Tiwari.
- Group website: http://virtualhumans.mpi-inf.mpg.de/

Research Assistant **Max Planck Institute (MPI-IS)** **March 2021 – Sep 2021**

Autonomous Learning Group
- We analyzed and proposed a solution for the pitfalls arising in heteroscedastic uncertainty estimation with probabilistic neural networks. Furthermore, we evaluated our method on various standard regression tasks (eg. UCI benchmarks, NYU depth regression, etc.) and showed it outperforms or is comparable to the current state-of-the-art methods. My main contribution was implementation, experimenting and validating theoretical findings. The paper appeared on ICLR 2022.
- Supervisors: Dr. Georg Martius and Maximilian Seitzer.
- Group website: https://al.is.mpg.de/

Awards and Scholarships

- **Scholarship for exceptionally gifted students: (2018-2021)** Holding a prestige scholarship given by *Ministry of Education, Science and Technological Development of the Republic of Serbia* for several years. The two main requirements were GPA and ranking on the conducted intelligence test.
- **Best Paper Honorable Mention** *European Conference on Computer Vision (ECCV), 2022* for the publication Pose-NDF: Modelling Human Pose Manifolds with Neural Distance Fields"

Technical Experience

Software Engineer **Origintrail** **July 2019 – Feb 2020**

Origintrail Decentralized Network
- As a part of the protocol team worked on development of data exchange protocols and modeling of knowledge graph in the Origintrail Decentralized Network.
- Company website: https://origintrail.io

Programming Teacher **SystemPro School of Programming** **July 2018 – July 2020**

Offering courses for talented high school students:
- Advanced algorithms and data structures
- Introduction and object-oriented programming
- Databases and web development

Selected University Projects

- **Self Driving Car** (2022). Implementations of behaviour cloning, Dueling-DQN and modular pipeline for the task of driving in OpenAI Car Racing environment. Repository is currently private. Technology: Python
- **Neural Audio Compression** (2021). Utilized deep learning, convolutional VQ-VAE encoder and WaveNet decoder, for the task of human speech compression. Extensive report and code are available on the Github repository: https://github.com/anticdimi/neural-compression. Technology: Python
- **Laser hockey RL** (2020). Implementation of the Soft Actor Critic method to solve the task of playing laser hockey in an environment built by Autonomous Learning Lab @ MPI-IS. 1st place (out of 150 students) in the competition. Extensive report and code are available on the Github repository: https://github.com/anticdimi/laser-hockey. Technology: Python
- **Arrhythmia Detection** (2020). Topological data analysis (TDA) combined with deep learning, applied to detection of arrhythmias from ECG data. Code available at: https://github.com/anticdimi/tda-arrhythmia-detection. Technology: Python
- **Peripheral blood cells clustering** (2020). Research project under supervision of Prof. Dr. Nenad Mitic, University of Belgrade and Prof. Dr. Vladimir Brusic, University of Nottingham. We applied multiple clustering

and unsupervised learning algorithms in order to analyze similarities in mononuclear peripheral blood cells data. Technology: Python

Languages and Technologies

- Frequently used: Python, Unix Shell, C/C++, Blender, OpenGL, Java, TypeScript
- Studied: SQL, C#, Go, Haskell, PHP, MATLAB, R, C#

Referral Contacts

- **Prof. Dr. Gerard Pons-Moll** Full Professor at University of Tuebingen
  - Website: https://virtualhumans.mpi-inf.mpg.de/people/pons-moll.html
  - Email: gerard.pons-moll@uni-tuebingen.de or jessica.endress@uni-tuebingen.de
- **Dr. Georg Martius** Research Group Learder at MPI-IS Tuebingen
  - Website: https://is.mpg.de/person/gmartius
  - Email: georg.martius@tuebingen.mpg.de