David Biertimpel

Machine Learning/ Computer Vision Engineer

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Interests

I have a passion for people, machine learning and the area where both intersect. I love computer vision and applications that make people's daily lives better. Excellent skills in theoretical machine learning, combined with a strong work ethic and a background in computer science, software development and psychology.

Education

MSc Artificial Intelligence, GPA: 8.3

University of Amsterdam

Sep 2018 – Aug 2020 Amsterdam, Netherlands

- Research Master with a strong focus on the theoretical aspects of machine learning and information theory.
- Mathematically derived and implemented most major concepts in machine learning including Gaussian processes, MCMC, variational inference, GANs, RNNs/LSTMs, normalizing flows, ICA, among others.
- Implementing applications of different computer vision concepts such as intrinsic image decomposition, epipolar geometry and 3D reconstruction, among others.
- Thesis: Learning shape manifolds for Instance Segmentation @ TomTom

BSc Human Computer Interaction, GPA: 8.1

University of Hamburg

Oct 2014 – Aug 2018 Hamburg, Germany

- Strongly interdisciplinary degree, combining the fields of computer science, psychology and design.
- Focus on human-robot Interaction, biopsychology and creating intuitive interfaces in VR.
- Strong computer science background with focus on software engineering, Alg. & DS and theoretical informatics.
- Thesis: Implementing a deictic gesture interface with the humanoid robot NICO. Final grade: 10 – ://github.com/
- Project: Multi-user collaboration in VR. Implementing a network infrastructure with C# and Unity – ://uni-hamburg.de/

Volunteer Experience

Volunteer Coordinator

Grace House CC, Globalteer via GIZ – ://giz.de/en/

Aug 2012 – Jul 2013 Siem Reap, Cambodia

- Participated in the 'weltwärts' programme of the GIZ, a development agency affiliated to the German government.
- Introducing short-term volunteers to the Cambodian culture and supporting them in their daily life.
- Supervising a Cambodian youth group in the evenings.
- Contributing to the Globalteer Sports Program, which organized weekly sports activities in several local NGOs.
- Organizing funding to enable schoolchildren to participate in an annual cycling event.

Work Experience

Machine Learning Research Intern

TomTom – ://tomtom.com/

Jan 2020 – ongoing, Full-Time Amsterdam, Netherlands

- Working on instance segmentation with the goal to improve generalization performance on novel classes.
- Focus is on applying insights from representation learning and theoretical machine learning to large-scale vision models.
- Experience with PyTorch, OpenCV, Detectron2, Slurm
- **References:** Sindi Shkodrani, Nóra Baka and Michael Hofmann.

Research Intern

Spinoza Centre for Neuroimaging – ://spinozacentre.nl/

Jun 2019 – Jul 2019, Full-Time Amsterdam, Netherlands

- Analyzing fMRI data from the Human Connectome Project corresponding to naturalistic video sequences to understand the connectivity of brain regions in auditory and visual coordinates.
- Automatically annotating video sequences with object detection architectures such as RetinaNet and Faster R-CNN.
- Experience with PyTorch, NIPY, Pycortex and the Connectome Workbench.

Student Employee

WISTS Group, University of Hamburg – :// uni-hamburg.de/

Nov 2017 – May 2018, Full-Time Hamburg, Germany

- Design and implementation of a chatbot with Keras, SciPy, and SpaCy.
- Building an infrastructure that connects the chatbot via HTTP requests to messaging platforms like Slack.
- Conducting and evaluating experiments for a user study that involved participants interacting with the chatbot.

Publication

[1] • Doreen Jirak, David Biertimpel, et al. *Solving Visual Object Ambiguities when Pointing: An Unsupervised Learning Approach*. 2019. arXiv: 1912.06449 [cs.CV].

Skills

Programming:

- Fluent in Python including PyTorch, SciPy, OpenCV, Scikit-learn and Keras
- Further experience in Matlab, Java, C#, Scheme and JavaScript.
- Fluent in the machine learning workflow including data mining, implementing models from scratch and training models on computer clusters.
- Intermediate knowledge in software engineering and architecture.

Research:

- Excellent skills in academic writing. Experience in the academic process including writing and revising papers.
- Naturally approaching problems scientifically. Creative problem solving, while founding new ideas based on previous research.

Languages:

- Native German speaker, proficient in English (IELTS: 7.5).