David Biertimpel

Computer Vision Research Engineer

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⌗ /dbtmpl   🐦 /dbtmpl   in /david-biertimpel   ⚲ Berlin, Germany

Interests

I have a passion for machine learning / computer vision research and applications that positively impact people's daily lives. I enjoy crafting feature representations and inductive biases tailored to the structure of the problem. I bring excellent skills in theoretical machine learning, combined with a strong background in computer science, software development and psychology.

Education

MSc Artificial Intelligence, GPA: 8.5 (excellent)

University of Amsterdam

📅 Sep 2018 – Dec 2020   ⚲ Amsterdam, NL

- Research Master with a strong focus on the theoretical aspects of machine learning and information theory.
- Mathematically deriving and implementing most major machine learning concepts including Gaussian processes, MCMC, variational inference, GANs, RNNs/LSTMs, GNNs/GCNs, 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 Foreground Cues for Novel Objects in Partially Supervised Instance Segmentation @ TomTom.

BSc Human Computer Interaction, GPA: 8.1 (good)

University of Hamburg

📅 Oct 2014 – Aug 2018   ⚲ Hamburg, DE

- Strongly interdisciplinary degree, combining the fields of computer science and psychology.
- Strong computer science background with focus on software engineering, algorithms & DS and theoretical informatics.
- Thesis: Implementing a deictic gesture interface with the humanoid robot NICO. Final grade: 10.0 – ://github.com/.
- Project: Multi-user collaboration in VR. Implementing a network infrastructure with C# and Unity – ://uni-hamburg.de/.

Skills

Programming:
- Fluent in Python including PyTorch, SciPy, OpenCV.
- Fluent in JavaScript including Tensorflow.js, React, Webpack.
- Experienced in software engineering and compl. analysis.
- Further experience with Matlab, Java, C#, C++, WebAssembly and Scheme.

Machine Learning Research:
- Fluent in different machine learning workflows including data mining, implementing models from scratch and training models on computer clusters.
- Excellent skills in academic writing. Experienced in academia including writing, revising and publishing papers.

Languages:
- Native German speaker, proficient in English.

Work Experience

Computer Vision Engineer

Figment – ://tryfigment.com/

📅 Feb 2021 – Present, Full-Time   ⚲ Remote / Amsterdam, NL

- R&D on real-time person segmentation models running on edge devices.
- Developing the backend of Figment – a JavaScript SaaS application offering virtual background and augmented reality features for video calls.
- Deploying person segmentation models on Nvidia Xavier edge GPUs.
- Experience with PyTorch, TensorRT, Tensorflow.js, TFLite, Webpack, AWS.

Machine Learning Research Intern

TomTom, Autonomous Driving Team – ://tomtom.com/

📅 Jan 2020 – Nov 2020, Full-Time   ⚲ Amsterdam, NL

- Working on instance segmentation with the goal to craft inductive biases that facilitate generalization to unseen classes.
- Designing, implementing and evaluating computer vision architectures. Research led to the creation of OPMask (ICCV 2021) – ://github.com/.
- Presenting papers in the weekly object detection reading group.
- Contributing to open-source (Detectron2) – ://github.com/.
- Experience with PyTorch, OpenCV, Detectron2, Slurm.

Research Intern

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

📅 Jun 2019 – Jul 2019, Part-Time   ⚲ Amsterdam, NL

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

Volunteer Experience

Volunteer Coordinator

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

📅 Aug 2012 – Jul 2013   ⚲ Siem Reap, KH

- Onboarding and supporting short-term volunteers.
- Organizing a Cambodian youth group in the evenings.

Publications

[1] - David Biertimpel et al. "Prior to Segment: Foreground Cues for Weakly Annotated Classes in Partially Supervised Instance Segmentation". In: *The IEEE International Conference on Computer Vision (ICCV)*. 2021.

[2] - Doreen Jirak et al. "Solving visual object ambiguities when pointing: an unsupervised learning approach". In: *Neural Computing and Applications*. June 2020.