Christoph Berger

http://www.bergerchristoph.com
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Professional Experience

06/2020 – Current

Software and Machine Learning Engineer (Working Student, 16h/Week), **Capmo GmbH, Munich**
Capmo builds digital tools for construction sites. Worked on a project to introduce user-sided automation of workflows using NLP on mobile devices as well as on the AWS infrastructure. Currently working as a full stack developer in Capmo's Node.js/Typescript/React stack.

03/2019 – 02/2020

Research Assistant, Department of Neuroradiology, Klinikum rechts der Isar
Developed a software tool to support the clinical workflow of radiologists and enable the collection of anonymized MRI scans into a standardized database to support deep learning training. Written in Python and deployed in Docker containers. Supervised by Dr. B. Wiestler and Florian Kofler at https://compimg.github.io

08/2019 – 10/2019

Visiting Researcher, Computational Imaging and Bioinformatics Lab, Harvard Medical School and Dana-Farber Cancer Institute, Boston, USA
Invited to work on the modelhub.ai platform for disseminating deep learning models. Built a training pipeline and baseline deep learning model for organ and tumour segmentation for radiation therapy planning. Notable events: Participated in the IBM MIT AI Research Week, gave an invited talk at UPenn http://www.cibl-harvard.org/

10/2018 – 04/2019

Tutor, Department of Informatics, Technical University of Munich, recurring every winter term: 2016, 2017, 2018, 2019
Taught weekly exercise sessions in C programming, introduced automated plagiarism checks for assignments and automated the grading of exercises.

06/2017 – 10/2018

Research Assistant, Image-based Biomedical Modeling Group, TU Munich
Worked on automated brain tumour segmentation and the Brain Tumor Segmentation Challenge in coordination with Center for Biomedical Image Computing and Analytics at UPenn. Implemented deep learning algorithms in Python technologies and created a public repository of segmentation algorithms which run in Docker containers.

Education

11/2020 – Current

Visiting Student, Imperial College London
Remote master thesis project on anomaly detection for computer vision at the BioMedIA group supervised by Dr. Ben Glocker and Konstantinos Kamnitsas at ICL and Magda Paschali at TUM.

02/2020 – Current

Honours Degree in Technology Management, Center for Digital Technology Management
The CDTM is a joint institution of both the Ludwig-Maximilians University and the Technical University of Munich and offers a highly competitive add-on honours degree programme to educate the innovators of tomorrow. Three core courses take the 25 students admitted per term through product development projects with industry partners and teach management, leadership and teamwork in practice.

10/2019 – Current

M.Sc. Biomedical Computing, Technical University of Munich
Focusing on Deep Learning for medical applications and software development. Developed a chemotherapy monitoring device prototype in the MedInnovate program and received a grant of 2500€ from the Initiative for Industrial Innovators. This project also placed in the top ten of the TUMIdeAward.

10/2015 – 02/2019	**B.Sc. Engineering Science, Technical University of Munich**
	Intense study program (210 ECTS) at the Munich School of Engineering (MSE) with to goal of providing exceptional students with a solid foundation in mathematics, engineering and computer science.
	Bachelor thesis at the Image-based Biomedical Modeling group under supervision of Prof. Dr. Menze on the fusion of image segmentation results and ensemble methods.

Publications

| 2021 | **Confidence-based Out-of-Distribution Detection: A Comparative Study and Analysis.** |
| | **Berger, C.**, Paschali, M., Glocker, B., & Kamnitsas, K. (2021). *arXiv preprint arXiv:2107.02568* |

2020	**BraTS Toolkit: Translating BraTS brain tumor segmentation algorithms into clinical and scientific practice.**
	Kofler, F., **Berger, C.**, Waldmannstetter, D., Lipkopva, J., Ezhov, I., Tetteh, G., Kirschke, J.S., Zimmer, C., Wiestler, B. and Menze, B., 2020. *Frontiers in Neuroscience*, *14*, p.125.
	Automatic detection of lesion load change in Multiple Sclerosis using convolutional neural networks with segmentation confidence.
	McKinley, R., Wepfer, R., Grunder, L., Aschwanden, F., Fischer, T., Friedli, C., Muri, R., Rummel, C., Verma, R., Weisstanner, C., Wiestler, B., **Berger, C.**, Eichinger, P., Muhlau, M., Reyes, M., Salmen, A., Chan, A., Wiest, R., and Wagner, F. 2020. ***NeuroImage: Clinical***, *25*, p.102104.

| 2019 | **ModelHub. AI: Dissemination Platform for Deep Learning Models.** |
| | Hosny, A., Schwier, M., **Berger, C.**, Örnek, E.P., Turan, M., Tran, P.V., Weninger, L., Isensee, F., Maier-Hein, K.H., McKinley, R. and Lu, M.T., 2019. *arXiv preprint arXiv:1911.13218*. |

| 2018 | **Identifying the best machine learning algorithms for brain tumor segmentation, progression assessment, and overall survival prediction in the BRATS challenge.** |
| | Bakas, S., Reyes, M., Jakab, A., Bauer, S., Rempfler, M., Crimi, A., Shinohara, R.T., **Berger, C.**, Ha, S.M., Rozycki, M. and Prastawa, M., 2018. *arXiv preprint arXiv:1811.02629*. |

Other notable events

| 2019 | **"The BraTS Algorithmic Repository",** *Invited Talk on October 3, 2019,* CBICA Seminar Series; Perelman School of Medicine, University of Pennsylvania |
| | **"Fusion of Brain Tumor Segmentations"**, *Invited Talk on January 22, 2019,* Neuroradiology Research Colloquium; Klinikum rechts der Isar, Munich |

Volunteering

02/2018 – Current	TEDxTUM, Operations Team Member, Team Lead (2019)
	Organization of a yearly main TEDx event with international speakers and over 500 attendees and multiple smaller events throughout the year.
	Responsible for the 10 members of the operations team which handles the event management aspects of the conference and coordination of more than 30 volunteers on the event weekend.

Languages

German (Native), English (Full Working Proficiency, C1/C2), Spanish (Advanced Proficiency, B1)

Skillset

Programming Languages	Python, Javascript, Typescript, Fundamentals in C
Frameworks	PyTorch, Keras/Tensorflow, Node.js, React, Flask
Subject Areas	Biomedical Imaging, Clinical Workflows, Radiation Oncology, Neuroimaging