

# Dominik Muhle

## Curriculum Vitae

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## Personal Data

Name Dominik Muhle  
Date of Birth 5. Januar 1998

## Languages

German Native  
English C1 Advanced - Cambridge CAE  
French B1

## Academics

- Since **Ph.D.**, *Technical University of Munich (TUM)*  
04/2022 Munich, Germany  
Ph.D. in 3D Scene Reconstruction at the Chair of Computer Vision & Artificial Intelligence in the Computer Vision Group under the supervision of Prof. Dr. Daniel Cremers
- 10/2018 – **Master's Program "Robotics, Cognition Intelligence"**, *Technical University of Munich (TUM)*  
10/2021 Munich, Germany, Final Grade: 1.4  
Master's Thesis: "Frame-To-Frame Rotation Estimation under Uncertain Feature Positions for Visual Odometry", Grade: 1.0  
WS19/20: Tutor for the course "Machine Learning"
- 10/2015 – **Bachelor's Program "Electrical Engineering"**, *Karlsruhe Institute of Technology (KIT)*  
09/2018 Karlsruhe, Germany, Final Grade: 1.3  
Bachelor's Thesis: "Sensorlose Regelung einer permanenterregten Synchronmaschine"
- 2007 – **High School**, *Gymnasium Unterrieden*  
2015 Sindelfingen, Germany, Final Grade: 1.3  
Honors: DPG-Abiturpreis, DMV-Abiturpreis, Ferry Porsche Preis

## Publications

### Gaussian Splatting in Style

A. Saroha, M. Gladkova, C. Curreli, D. Muhle, T. Yenamandra, D. Cremers, GCPR 2024

### Boosting Self-Supervision for Single-View Scene Completion via Knowledge Distillation

K. Han, D. Muhle, F. Wimbauer, D. Cremers, CVPR 2024

### S4C: Self-Supervised Semantic Scene Completion with Neural Fields

A. Hayler, F. Wimbauer, D. Muhle, C. Rupprecht, D. Cremers, 3DV 2024, Spotlight

### Learning Correspondence Uncertainty via Differentiable Nonlinear Least Squares

D. Muhle, L. Koestler, K.M. Jatavallabhula and D. Cremers, CVPR 2023

### The Probabilistic Normal Epipolar Constraint for Frame-To-Frame Rotation Optimization under Uncertain Feature Positions

D. Muhle, L. Koestler, N. Demmel, F. Bernard and D. Cremers, CVPR 2022

### Düngereinrichtung, Bewässerungssystem sowie Verfahren zum Betreiben eines Bewässerungssystems

F. Dinkelacker, D. Muhle, S. Muhle, M. Schlinger, Patent Nr. 10 2017 14 740

## Professional Experience

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- 10/2019 – **Founding Member, WARP**  
03/2021 Munich, Germany, Start-Up for autonomous driving for sub-car vehicles
- Supervision of student interns in the area of LiDAR Odometry and Mapping (LOAM)
  - Research and implementation of a custom SOTA feature based Visual Odometry algorithm
- 05/2019 – **Student Team, ROBOY**  
09/2019 Munich, Germany, Humanoid Robotics Research Project  
Student team for autonomous driving
- Implementation of a navigation stack for LiDAR Simultaneous Localization and Mapping
  - Implementation of a longitudinal control and lateral vehicle control using MYO-muscles
- 10/2016 – **Co-founder, Flower AI**  
01/2019 Munich, Germany, Start-Up for intelligent gardening assistant  
Financed and supported by UnternehmerTUM  
Participation at the Google Cloud Start-up Programm with 20 000\$ Cloud Credits
- Development of an autonomous irrigation hardware
  - Patent application for the automatic fertilizer dispenser
  - Moisture prediction using machine learning
- 03/2018 – **Intern, Bosch**  
09/2018 Schwieberdingen, Germany, Department: Power Train Solutions  
3 1/2 Months Internship  
2 1/2 Months Bachelor's Thesis: "Sensorlose Regelung einer permanenterregten Synchronmaschine"
- Design of a control system that switches between low speed control and high speed control
  - Implementation of the control system in MATLAB Simulink with a provided motor model
  - Validation of the control system with a real motor

## IT-Skills

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Linux	<b>very good</b>	Python	<b>very good</b>	MATLAB	<b>very good</b>
MacOS	<b>very good</b>	C++	<b>very good</b>	Simulink	<b>very good</b>
Windows	<b>good</b>	ROS	<b>good</b>	L <sup>A</sup> T <sub>E</sub> X	<b>very good</b>

## Selected Scholarships

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- 11/2019 – **Deutschlandstipendium, TUM**  
10/2020 Financial scholarship for excellent students financed in equal amount from the private sector and the state
- 10/2019 – **best.in.tum, TUM**  
10/2021 Promotion of outstanding students at the department of Informatics
- 03/2017 – **UnternehmerTUM [x]**  
10/2017 Financial support for Flower AI

## Others

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2013 – <b>Eichholzer Täle, Sindelfingen, Germany</b>	2013 <b>Intel Leibniz Challenge</b>
2015 Summer camp tutor	Participated with great success

Garching, 6. September 2024