



Projects Teaser & Questionary

Applied Machine & Deep Learning (190.015)

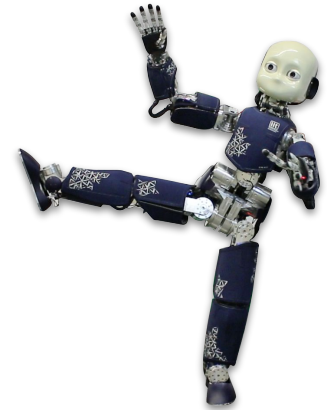
Univ.-Prof. Dr. Elmar Rueckert

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Email: teaching@ai-lab.science



WO AUS FORSCHUNG ZUKUNFT WIRD

Chair of Cyber-Physical-Systems



To complete the course - pick one out of six projects

[Steel Production Data] Application and comparison of deep neural networks for steel quality prediction in continuous casting plants with data from the 'Stahl- und Walzwerk Marienhütte GmbH Graz'.

Goal: Given a dataset of sensor and process data predict a quality relevant metric (yield strength).

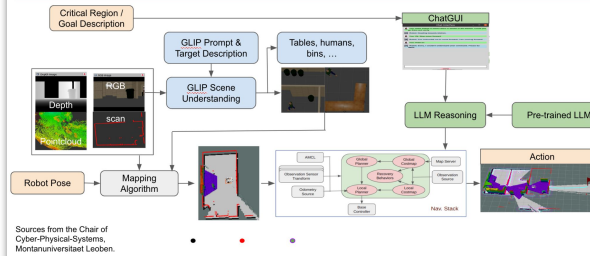


Source from https://www.steierzeitung.at/steiermark/graz/5994832/Besuch-in-der-Marienhuettle_Grazer-Stahl-werk_kocht_jetzt_millen_in visited on 04.10.2023.

Source <https://www.avi.at/marienhuettle-stahl-und-walzwerk> visited on 04.10.2023.

[Robotics 1] Motion analysis and path planning for human-machine interaction in logistics tasks with mobile robots of the Chair of CPS.

Goal: In computer simulations mobile robot path planning and navigation algorithms are tested.



Sources from the Chair of Cyber-Physical-Systems, Montanuniversität Leoben.

[Sign Language] Letter-level Sign-Language Recognition.

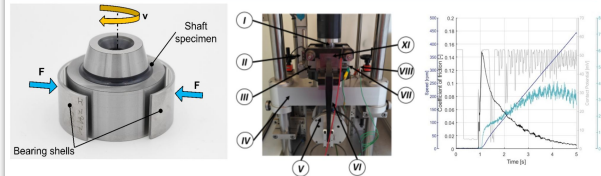
Goal: This a [computer vision](#) project encompasses the development, training and evaluation of [convolutional deep learning models](#)* and their deployment on real-world using a web-camera**.



Sources from the Chair of Cyber-Physical-Systems, Montanuniversität Leoben.

[Mechanical Eng. Data] Predictive maintenance of bearing shells using frequency analysis in decision trees and deep neural networks based on acoustic measurement data.

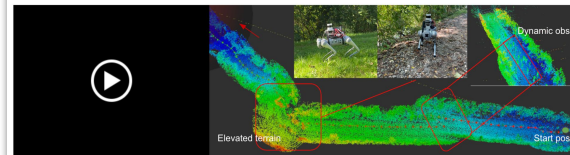
Goal: From a dataset of acoustic measurements of a test bench for bearings under stress predict bearing shell failures.



Sources from the Chair of Mechanical Engineering, Montanuniversität, Leoben.

[Robotics 2] Autonomous navigation and mapping with RGB-D cameras of the four-legged robot Unitree Go1 for excavation inspection in mining.

Goal: Given a dataset of sensor data recorded using a real legged robot, the goal is to learn map of indoor and outdoor environments.



Sources from the Chair of Cyber-Physical-Systems, Montanuniversität Leoben.

[Own Problem] I want to work on my own dataset and research problem.

Goal: Given your own dataset define relevant research questions and answer them through the use of machine learning methods.



[Steel Production Data] Application and comparison of deep neural networks for steel quality prediction in continuous casting plants with data from the 'Stahl- und Walzwerk Marienhütte GmbH Graz'.

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Source from

<https://www.kleinezeitung.at/steiermark/graz/5994832/Besuch-in-der-Marienhuetten-Grazer-Stahlwerk-kocht-jetzt-mitten-im> visited on 04.10.2023.

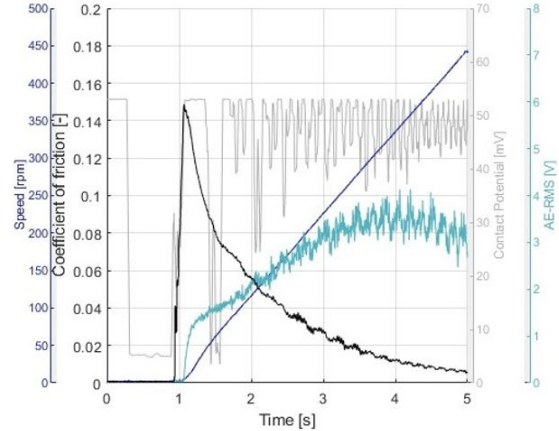
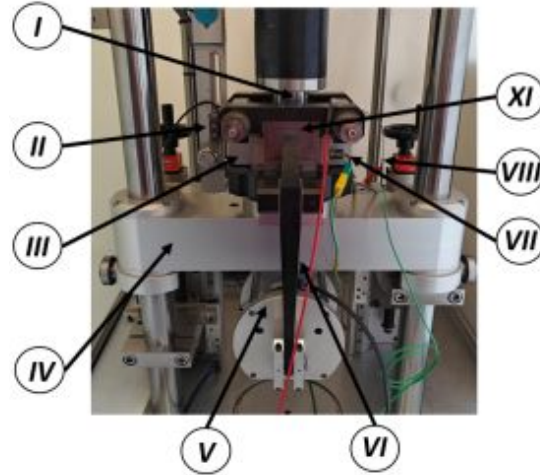
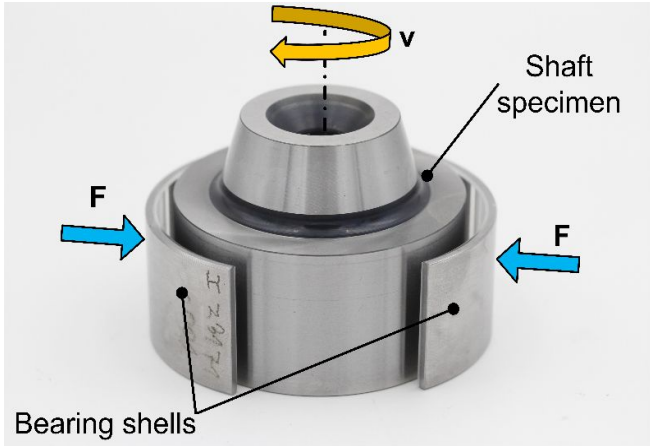


Source

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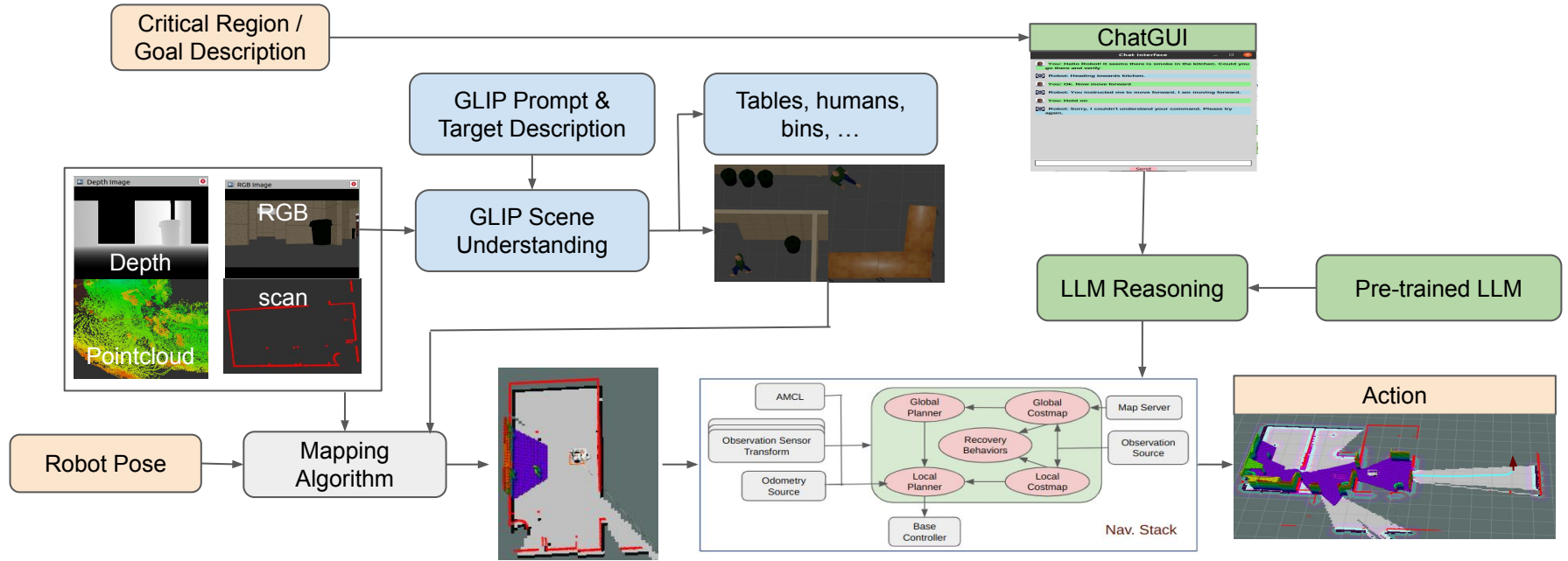
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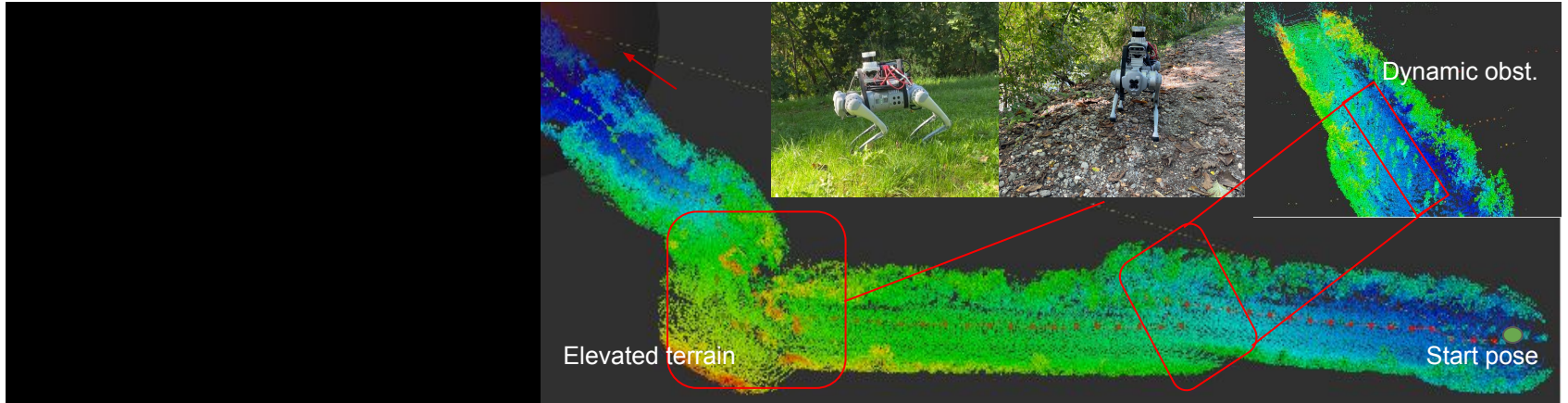
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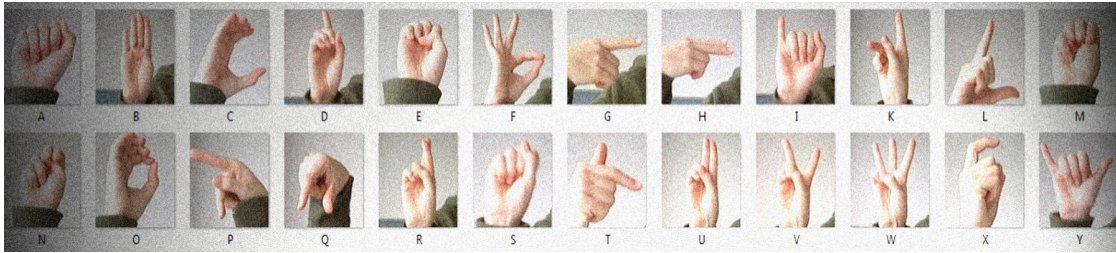
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Sources from the Chair of
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Goal: Given your own dataset define relevant research questions and answer them through the use of machine learning methods.



Please fill out our questionnaire

190.015 Projects & Team Work

Please share your preferences with us. We will adapt the topics accordingly tomorrow (Th. 05.10.2023). Also teams will be assigned based on your level of expertise.

Responses are connected to your account. An asterisk (*) indicates mandatory questions.

Which of the following project topics attract your interest the most? Select only one project. *

- [Steel Production Data] Application and comparison of deep neural networks for steel quality prediction in continuous casting plants with data from the 'Stahl- und Walzwerk Marienhütte GmbH Graz'.
- [Mechanical Eng. Data] Predictive maintenance of bearing shells using frequency analysis in decision trees and deep neural networks based on acoustic measurement data.
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Thank you for your attention!

Visit our Youtube Channel:

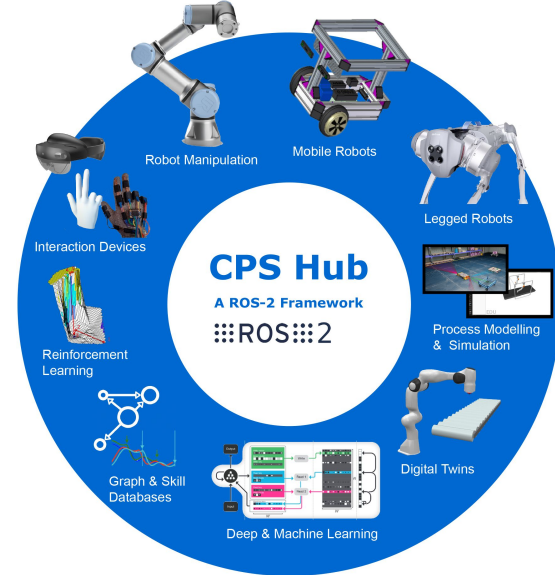
<https://youtube.com/@CPSAustria>



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