

Certificate of Completion

Herewith I confirm that

Chitran Ghosal

born Sep 4th, 2023, student-ID: 387307

successfully completed the course

Machine Learning and its applications in natural sciences

I taught at TU Chemnitz in the summer term 2023.

The course consisted of 2 hours/week lecture and 1 hour/week exercises and covered the following topics:

- Supervised learning: regression and classification-based learning algorithms such as linear and logistic regression, nearest neighbor, discriminant analysis and support vector machines
- Unsupervised learning: kMeans and hierarchical clustering
- Algorithm performance evaluation
- Dimensionality reduction and regularization
- Non-linear models and time series analysis
- Resampling methods
- Decision trees
- Neural networks
- Image processing
- Convolutional neural networks
- Deep generative models including diffusion and transformer models

The student successfully prepared a seminar paper on the topic

Height profile analysis of Bi islands deposited on Epitaxial Graphene using Linear Constrained Optimization Techniques

and passed his oral exam on July 28th, 2023 with grade^(*) 1.3.

Chemnitz,



Dr. Björn Brauer

(*) possible grades: 1.0; 1.3; 1.7; 2.0; 2.3; 2.7; 3.0; 3.3; 3.7; 4.0; 5.0, where 1.0 is the best, 4.0 the worst pass grade; 5.0 implies fail.