



Technische
Universität
Braunschweig



Vortrag im Gästeprogramm des GRK 2075

Bálint Daróczy

Institute for Computer Science and Control, Hungarian Academy of Sciences

Manifolds of deep neural structures

Donnerstag, 13.12.2018, 13.30 Uhr
Institut für Wissenschaftliches Rechnen
Mühlenpfordtstrasse 23, 8. OG, Raum 812

Optimization is still one of the key problems in machine learning. There are some cases where neither analytical nor combinatorial solutions are known but we can handle the problem as a "random walk" on a Riemannian surface [1]. During the talk we discuss several manifolds closely connected to "shallow" or "deep" models (data, loss [1,2], generalization, gradient graph [3] and hyper surfaces) while focusing on the expressive power of the tangent bundle.

1. Ollivier, Y. (2015). Riemannian metrics for neural networks I: feedforward networks. *Information and Inference: A Journal of the IMA*, 4(2), 108-153.
2. Amari, S. I. (1998). Natural gradient works efficiently in learning. *Neural computation*, 10(2), 251-276.
3. Choromanska, A., Henaff, M., Mathieu, M., Arous, G. B., & LeCun, Y. (2015). The loss surfaces of multilayer networks. In *Artificial Intelligence and Statistics* (pp. 192-204)

Kontakt

Graduiertenkolleg 2075
Technische Universität Braunschweig
Beethovenstraße 51
38106 Braunschweig
0531 - 391-3668
grk-2075@tu-bs.de
www.tu-braunschweig.de/grk-2075



Technische
Universität
Braunschweig



Vortrag im Gästeprogramm des GRK 2075

András Benczúr, PhD:

Data Science in Industrial IoT Applications

Donnerstag, 13.12.2018, 14.30 Uhr
Institut für Wissenschaftliches Rechnen
Mühlenpfordtstrasse 23, 8. OG, Raum 812

Smart factories are considered the next industrial revolution with the main promise that monitoring the sensor data of manufacturing processes real time, we may predict and mitigate failures in the production process. The difficulty of predicting industrial processes lie in the complex structure of the available data. Sensor information from manufacturing is richer compared to typical time series data, since information is organized hierarchically both on the product and on the process level.

In my presentation, I will describe a few industrial IoT use cases where I participated in the data analysis, and I will overview the main techniques for time series classification that I found useful in these projects.

Kontakt

Graduiertenkolleg 2075

Technische Universität Braunschweig

Beethovenstraße 51

38106 Braunschweig

0531 - 391-3668

grk-2075@tu-bs.de

www.tu-braunschweig.de/grk-2075