



Master Thesis (e.g. InfoTech) or Forschungsarbeit (ETIT)

In collaboration with Bosch Center for Artificial Intelligence

Project title	Training Dynamics of Multi-Generator Adversarial Nets
Job description	<p>Generative Adversarial Nets (GAN) [1] have proven to be very powerful models for synthesizing realistically looking data samples without the need for explicit estimation of the underlying data distributions. They, however, suffer from some practical limitations, including for example training instabilities and mode collapse. Therefore, some recent studies targeted a more theoretical understanding of the training dynamics of these models [2-3], while others proposed multi-generator architectures to maintain higher diversity amongst synthesized samples [5-6].</p> <p>The main objectives of this project include studying training dynamics of Multi-Generator Adversarial Nets [5-6], estimating convergence, stability, and diversity conditions in prototypical models, and generalizing to real datasets.</p> <p>A scientific publication of the results is possible and even desirable.</p> <p>[1] https://arxiv.org/abs/1406.2661 [2] http://proceedings.mlr.press/v80/mescheder18a.html [3] https://arxiv.org/abs/1706.04156 [4] https://arxiv.org/pdf/1802.01568.pdf [5] https://openreview.net/forum?id=rkmu5b0a-</p>
Qualifications	<ul style="list-style-type: none"> • Student in electrical engineering, computer science, mathematics, physics, or a related field. • Strong knowledge of and practical experience in machine learning. • Proven programming skills (preferably in MatLab, Python, or R). • Experience in a machine-learning framework (e.g. tensorflow). • Experience in information theory or system and control theory is a bonus.
Begin	According to agreement
Duration	6 Months
Language	English
Supervisor	ISS + Bosch Karim Barsim (Karim.Barsim@de.bosch.com)

Please contact Karim Barsim from Bosch directly with your CV and Master record.

16.10.2018