



Report of Kyoto University (KU) – University of Zurich (UZH)
ECR Mobility program

Section 1

Applicant (at the time of application, i.e. supervisor of the visiting researcher or the visiting researcher themselves)	
Name	Yugo NAKAYAMA
Job title	Assistant Professor
University	Kyoto University
Affiliation	Graduate School of Informatics

Section 2

Visiting researcher (if different from the above)	
Name	
Job title	
University	
Affiliation	

Section 3

Host researcher	
Name	Manuel Günther
Job title	Assistant Professor
University	University of Zurich
Affiliation	Department of Informatics

Section 4

Summary of the project (approx. 200 words)
<p>*Please submit a summary of the project in Japanese in addition to the English summary (approx. 400 characters).</p> <p>科学と情報化の進展に伴い、多くの特徴量を観測することが可能となった。これに伴い、データの形態は複雑化し、データの次元化が進む中、深層学習はその汎用性と性能の高さから幅広く用いられている。私は高次元データ解析の立場から調査するため、コンピュータ画像処理の専門であり、深層学習についても精通している Manuel Günther 助教の研究室へ訪問した。まず、それぞれが異なる背景を持つため、互いの研究紹介を行った。私が持つ高次元データ解析の技術について、Günther 助教の研究室の観点から意見を頂き、その意見に関する調査に加え、高次元データと深層学習の接点に関して先行研究を調査した。深層学習で必要となる技術的なサポートも受けた。滞在期間で得られた先行研究と数値実験の結果を報告・議論した。今後も定期的な議論・交流を行なっていく予定である。</p> <p>With the advancement of science and information technology, it has become possible to observe a large number of features. As a result, the forms of data have become increasingly complex, and the size of data is higher dimension. The deep learning is widely used because of its versatility and high performance. To study from the standpoint of high-dimensional data</p>



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analysis, I visited the laboratory of Assistant Professor Manuel Günther who is the host researcher and specializes in computer image processing and is familiar with the deep learning. At first, because of our different backgrounds, we introduced each other's research. I received comments on my high-dimensional data analysis techniques from the perspective of Assistant Professor Günther's laboratory. In addition to a survey of his comments, I investigated previous research on the interface between high-dimensional data and the deep learning. I also got the technical advice we needed for the deep learning. We reported and discussed the results of previous studies and numerical experiments conducted during our stay. We plan to hold regular discussions and exchanges in the future.