

Insights on hard inverse problems

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Inverse problems regularization plays an important role on biomedical imaging applications. These applications involve indirect measurements, carrying forward models with highly correlated columns, and in some cases highly sparse data. These challenges are hardly tackled by classical sparse coding theory, and for this reason, researchers are incorporating deep learning techniques to learn structures that are hard to recover. In this talk I want to show some of the main issues that I've encountered, when trying to design a neural network architecture that can successfully reconstruct data coming from CT (Computed Tomography) and EEG (Electroencephalography) imaging. I am also going to present you possible solutions to these issues and some insights on the fundamental reasons behind them. The main aim of this talk is to show you interesting problems that are today far from being theoretically solved.