Topics in Non-Parametric Statistics

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Preface

The subject of Nonparametric statistics is statistical inference applied to noisy observations of infinite-dimensional “parameters” like images and time-dependent signals. This is a mathematical area on the border between Statistics and Functional Analysis, the latter name taken in its “literal” meaning – as geometry of spaces of functions. What follows is the 10-lecture course given by the author at The XXVIII Saint-Flour Summer School on Probability Theory. It would be impossible to outline in a short course the contents of rich and highly developed area of Non-parametric Statistics; we restrict ourselves with a number of selected topics related to estimating nonparametric regression functions and functionals of these functions. The presentation is self-contained, modulo a few facts from the theory of functional spaces.

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