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3.2 Proximal Neighbourhood; 3.3 Application: EF-Proximity in Visual Merchandising; 3.4 Problems; 4. Continuity and Proximal Continuity; 4.1 Continuous Functions; 4.2 Continuous Invariants; 4.3 Application: Descriptive EF-Proximity in NLO Microscopy; 4.3.1 Descriptive L-Proximity and EF-Proximity; 4.3.2 Descriptive EF Proximity in Microscope Images; 4.4 Problems; 5. Separation Axioms; 5.1 Discovery of the Separation Axioms; 5.2 Functional Separation; 5.3 Observations about EF-Proximity; 5.4 Application: Distinct Points in Hausdorff Raster Spaces; 5.4.1 Descriptive Proximity; 5.4.2 Descriptive Hausdorff Space; 5.5 Problems; 6. Uniform Spaces, Filters and Nets; 6.1 Uniformity via Pseudometrics; 6.2 Filters and Ultrafilters; 6.3 Ultrafilters; 6.4 Nets (Moore-Smith Convergence); 6.5 Equivalence of Nets and Filters; 6.6 Application: Proximal Neighbourhoods in Camouflage Neighbourhood Filters; 6.7 Problems; 7. Compactness and Higher Separation Axioms; 7.1 Compactness: Net and Filter Views; 7.2 Compact Subsets; 7.3 Compactness of a Hausdorff Space; 7.4 Local Compactness; 7.5 Generalisations of Compactness; 7.6 Application: Compact Spaces in Forgery Detection; 7.6.1 Basic Approach in Detecting Forged Handwriting; 7.6.2 Roundness and Gradient Direction in Defining Descriptive Point Clusters; 7.7 Problems; 8. Initial and Final Structures, Embedding; 8.1 Initial Structures; 8.2 Embedding; 8.3 Final Structures; 8.4 Application: Quotient Topology in Image Analysis; 8.5 Problems; 9. Grills, Clusters, Bunches and Proximal Wallman Compactification; 9.1 Grills, Clusters and Bunches; 9.2 Grills; 9.3 Clans; 9.4 Bunches; 9.5 Clusters; 9.6 Proximal Wallman Compactification; 9.7 Examples of Compactifications; 9.8 Application: Grills in Pattern Recognition; 9.9 Problems

Sommario/riassunto

The principal aim of this book is to introduce topology and its many applications viewed within a framework that includes a consideration of compactness, completeness, continuity, filters, function spaces, grills, clusters and bunches, hyperspace topologies, initial and final structures, metric spaces, metrization, nets, proximal continuity, proximity spaces, separation axioms, and uniform spaces. This book provides a complete framework for the study of topology with a variety of applications in science and engineering that include camouflage filters, classification, digital image processing, f