

Machine learning in cancer and medical imaging

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Abstract

In this talk we introduce the Singular-Vectors Feature Selection (SVFS) method, our novel algorithm designed for feature selection. SVFS adeptly navigates the complexities of high-dimensional datasets, a prevalent challenge in bioinformatics, by adeptly pinpointing the most pertinent features for effective pattern recognition. Our aim is to integrate theoretical machine learning concepts with tangible cancer research, underscoring the profound influence these methodologies wield in deepening our understanding and enhancing our fight against cancer. Further, we will explore the application of machine learning in dissecting colorectal cancer data. We focus on utilizing meta-analysis techniques to unearth critical genetic markers pivotal to colorectal cancer. Lastly, we will delve into the recent breakthroughs in image segmentation and lesion detection, emphasizing their relevance and application in breast cancer diagnosis and treatment. We highlight how cutting-edge machine learning tools are revolutionizing the early detection and accurate diagnosis of breast cancer, marking a significant stride in oncological medical imaging.

Biography

Hamid Usefi currently holds the position of a full professor at Memorial University. He obtained his Ph.D. From Western University, his M.Sc. From the IASBS, in Zanjan, and his B.Sc. in Mathematics from Amir Kabir University of Technology in Tehran, Iran. Hamid also served as a Postdoctoral Fellow at the University of Toronto and the University of British Columbia. His research interests include various areas, including algebra, machine learning, deep learning, bioinformatics, and optimization methods to develop machine learning algorithms with applications in cancer, finance, and industry.

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