



COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Seminar

Thursday April 30, 2020 at 11:00am via Teams (Please Contact Dr. Pascal Matsakis if you would like to view)

Contributions to the Computation of the Φ -Descriptor for 2D
Vector Objects
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ABSTRACT:

When referring to the location of objects, one will often make use of spatial prepositions (e.g., *inside*, *surrounding*, *near*, *below*, etc.). These prepositions describe the various spatial relationships held between pairs of objects, and form an important basis of our spatial understanding. Relative position descriptors, a type of image descriptor, are designed to extract this spatial information from objects within an image. Use of relative position descriptors allows for quantitative descriptions of the spatial relationships held between objects. Various applications for relative position descriptors have been found, including human-robot communication, medical imaging and geographic information systems.

Throughout the literature, various relative position descriptors have been developed. Of these models, the Φ -Descriptor covers the widest variety of spatial relationships. It is based on a novel approach, extracting spatial information from pairs of consecutive object boundary points. Our research follows previous efforts in expanding the Φ -Descriptor to the case of 2D vector objects. An alternative interpretation of the object boundary point approach is presented, substituting boundary points for vector boundaries, with the goals of simplifying vector spatial information derivation and expanding compatibility with various vector object types and configurations.