



**WYDZIAŁ  
MATEMATYKI  
I FIZYKI STOSOWANEJ**  
POLITECHNIKI RZESZOWSKIEJ

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Rozpoznawanie rysunków grafów

**Praca dyplomowa magisterska**

Opiekun pracy:  
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Rzeszów, 2024



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# **1. Wprowadzenie**

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

## **1.1. Przegląd literatury**

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# **2. Teoria grafów**

## **2.1. Rodzaje grafów**

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## **2.2. Rozpoznawanie grafów**

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### 3. Wykorzystywane technologie

Praca opiera się na wykorzystaniu języka R oraz Python do generowania zbiorów danych, wszelkich manipulacji na nich oraz ich klasyfikacji.



Rysunek 3.1: Logo R

Język R to szeroko stosowany w statystyce, analizie danych oraz naukach przyrodniczych język interpretowalny. Nie ma on skomplikowanej składni i jest przystosowany do bycia jak najbardziej przyjaznym dla nowego użytkownika. Oprócz dużych możliwości obliczeniowych, jest również świetnym narzędziem do wizualizacji danych, co spowodowało, że został wybrany do stworzenia zbioru danych. Grafy wygenerowane zostały przy pomocy biblioteki `igraph` w wersji 2.0.3. Jest to pakiet do tworzenia i analizy struktur sieci, a co za tym idzie oferuje bogaty wybór funkcji do generowania losowych i regularnych grafów oraz ich wizualizacji.



Rysunek 3.2: Logo Python

Język Python to wysokopoziomowy język programowania ogólnego przeznaczenia. Jest jednym z najpopularniejszych języków na świecie dzięki swojej wszechstronności oraz prostocie składni. Znaczna liczba bibliotek pozwala na wykorzystywanie Pythona od prostych skryptów, przez analizę danych, aż po rozbudowane aplikacje,

takie jak całe systemy największych gigantów technologicznych, np. Google. Język ten jest szeroko wykorzystywany w dziedzinie Data Science do wizualizacji, analizy i przetwarzania danych oraz w uczeniu maszynowym. Ostatnie z wymienionych zastosowań zdecydowało o wyborze języka Python jako narzędzia do stworzenia modelu klasyfikacji grafów.

## **4. Testy**

### **4.1. Wyniki**

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### **4.2. Wnioski**

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## **5. Podsumowanie i wnioski końcowe**

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## Załączniki

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**STRESZCZENIE PRACY DYPLOMOWEJ MAGISTERSKIEJ**

**ROZPOZNAWANIE RYSUNKÓW GRAFÓW**

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Słowa kluczowe: (max. 5 słów kluczowych w 2 wierszach, oddzielanych przecinkami)

Treść streszczenia po polsku

**MSC THESIS ABSTRACT**

**RECOGNITION OF GRAPHS**

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Key words: (max. 5 słów kluczowych w 2 wierszach, oddzielanych przecinkami)

Treść streszczenia po angielsku