

Expressions of Interests (EoI)

I. Research Group Heading/Name & Full Address/Affiliation.

Affiliation:

UTP UNIVERSITY OF TECHNOLOGY AND LIFE SCIENCES IN BYDGOSZCZ
FACULTY OF TELECOMMUNICATIONS, COMPUTER SCIENCE AND ELECTRICAL
ENGINEERING

Department of Telecommunications Systems
Al. Prof. S. Kaliskiego 7, 85-789 BYDGOSZCZ

Group name:

Character recognition for postal applications

II. Name of the Group's Leader with a Short BIO (CV).

Personal details

Name: Mirosław Miciak
Phone: +48523408115
e-mai: miciak@utp.edu.pl

Work experience

2002 - University of Technology and Life Sciences in Bydgoszcz
position: University Teacher

Education

2004 – 2007 University of Technology and Life Sciences in Bydgoszcz
III degree study: Construction and exploitation of machines
1998 - 2002 University of Technology and Agriculture in Bydgoszcz
II degree study: Electronics and Telecommunication
specialty :Telecommunication Networks and Multimedia
1996 - 1998 Rzeszow University of Technology
subject: Computer Science
specialty: IT systems
1991 - 1996 Electronic Technical School in Przemyśl
subject: Radio engineering and television

III. Names of the Group's Members, and Their Research Areas/Interests.

dr inż. Roman Wiatr

The study of logistics processes in mail transport systems, Analysis of the processes of sorting unit loads in logistic systems

dr inż. Mirosław Miciak

Skills in area of image and signal processing, software engineering, algorithms and dynamic data structures, operating systems, networks and computer systems, methods and techniques of programming using high-level languages.

IV. Leading Research Topic of the Group.

Leading Research Topic of our Group is a new approach of handwritten characters recognition algorithms applied to recognition of postal items on the basis of postcode information.

V. Best Realizations of the Main Research Topic (Brief Characteristics or Description).

Our research was carried with digit characters used in authentic zip code of various mail pieces. Developed algorithms of post code character image processing can be divided into phases: image character normalization, Radon Transformation calculating, feature moments calculating and feature vector building. Research also held areas: image normalization, colorful image conversions, modifications of Radon Transformation, feature calculation basis on the Radon and Radon modified parameter space.

VI. General Expression of Interests.

The main objective of our work is to use the Radon Transformation and other methods to obtain an invariant set of character image features, on basis of which postal code will be classified. Additionally, the other areas of research contains some preliminary image processing and methods of computer visions.

VII. Specific Interests and Additional Topics of Extended Interest.

Additional topics of extended interest also includes developing preliminary classification methods and low computational methods of Radon Transformation.

VIII. Other Important Characteristics of the Group.

Common publications with other research groups.

IX. Main Group's Achievements.

Numerous publications in national and international conferences. Publications in scientific journals. Publication of the doctoral dissertation: The intelligent system of recognition and classification of postal items.

X. Max. 5 Best Selected Publications and/or Other Relevant Accomplishments.

1. Mirosław Miciak, *Radon Transformation and Principal Component Analysis Method Applied in Postal Address Recognition Task*. International J. of Computer Science and Applications, vol.7, pp.33-44, India, 2010 r.
2. Roman Wiatr, Mirosław Miciak, *The postal image processing problems in logistics tasks*. Logistyka 4/2014, s. 1447 – 1455, 2014.
3. Mirosław Miciak, Roman Wiatr, *The problems of recognition and classification of images in logistics tasks*. Logistyka 4/2014, s. 861 – 870, 2014.
4. Mirosław Miciak, *Invariant Radon-moment descriptor for postal applications*, Image Processing and Communications - 2015, 20, 4, 13-22, 1425-140X
5. Roman Wiatr, Mirosław Miciak, *The data address identification problems on automatic sorting systems*, Studies and Proceedings of Polish Association for Knowledge Management - 2016, 80, 162-169, 1732-324X