Krzysztof Fiok

Postdoctoral Research Associate

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Web profiles:

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https://scholar.google.pl/citations?user=Puld3dsAAAAJ&hl=en

Education:

2015 - PhD with distinction at Warsaw University of Technology (hereinafter WUT), Warsaw, Poland. Dissertation on “Parametric optimization of an innovative manual wheelchair.”

2009 – Master of Science and engineer in Transportation at Warsaw University of Technology, Warsaw, Poland.

Professional experience:

04.2019 – Present - Postdoctoral Research Associate with the emphasize on Machine Learning and Natural Language Processing. Conducting research under ONR research grant N000141812559 “Identification and Prediction of Human Signature Behaviors Based on Textual Unstructured Data”. Department of Industrial Engineering & Management Systems, University of Central Florida (UCF), Orlando, Florida, U.S.A.

02.2018-04.2019 – freelancer, researcher, creating dedicated image analysis solutions with use of Convolutional Neural Networks. Various AI vision research projects carried out mostly in the field of biological images in:

1) Confocal microscopy, detection of dendritic spines:

a) for prof. Jakub Włodarczyk, Nencki Institute of experimental biology, Poland

b) for prof. Jacek Jaworski, Laboratory of Molecular and Cellular Neurobiology, International Institute of Molecular and Cell Biology, Poland

2) Optical microscopy, detection of in vivo neutrophil extracellular traps (NETs) for prof. dr hab. n. med. Urszula Demkow, Medical University of Warsaw, Clinical Immunology Unit, Poland

3) Detection of tadpole's on a video, for phd Barbara Pietrzak, Warsaw University, Division of

Biology, Unit for Zoology and Hydrobiology, Poland

4) Optical microscopy, instance segmentation of C. Elegans, for Jagiellonian University, Faculty of Biology, phd Zofia Prokop

5) Confocal Microscopy. 2D Detection of “quantic drops” on an image stack along with 3D visualisation for phd Joanna Grzyb, Department of Biophysics, Faculty of Biotechnology, University of Wrocław

6) (Not bio field) modification and transfer learning of pre-trained machine learning models for face detection on images. Training mostly on WiderFace dataset;

02.2018 – 11.2018 – researcher, EMG data analyst in a research grant “Efficiency of driving a wheelchair with a classical push rim and lever drive of people with disabilities” carried out at Józef Piłsudski University of Physical Education, Warsaw, Poland

2015-12.2017 – adiunkt at WUT, Faculty of Transport, Department of Informatic and Mechatronic Systems in Transport

2010-2015 - research assistant at WUT, Faculty of Transport, Department of Informatic and Mechatronic Systems in Transport

Other selected achievements:

- 10.2018 – awarded NVIDIA GPU grant as leader of a research project for Medical University of Warsaw, Poland
- 10.2016 – 2nd team award from The Prime Minister of Poland for scientific achievements
- 6 patents granted (with other authors, 4 as main author) in the field of design of manual propelled wheelchairs
- 2014-2016: leader of a research project, grant number INNOTECH-K3/IN3/52/226230/NCBiR/13 (Poland)
- 11.2011 – 05.2015 – chairman of the board of association of graduates of Stefan Batory High School in Warsaw, Poland

Computer Skills:

Machine Learning, Object Detection and Instance Segmentation, NLP: Text Classification, Sentiment Analysis with Deep Learning Language Models.
Programming Languages: Python3, LabView. Technical Software Experience working with engineering software CATIA v5, AutoCAD.

Publications:

Błażkiewicz, M., Wiszomirska, I., Fiok, K., Mróz, A., Kosmol, A., Mikicin, M., ... & Marszałek, J. Comparison of muscle activity during hand rim and lever wheelchair propulsion over flat terrain. DOI: 10.5277/ABB-01322-2019-02, paper in print

Wałowski, K., Fiok, K., Grabarek, I., & Sitek, M. (2018). Preliminary Questionnaire Survey of a Wheelchair Prototype Driven by a Lever Mechanism. In Ergonomics For People With Disabilities (pp. 37-46). Sciendo.

Fiok, K., Błażkiewicz, M., Wiszomirska, I., Skendraoui, N., Bogard, F., Murer, S., & Taiar, R. (2018, October). EMG Comparison of Sport Manual Wheelchair Propelled by Lever Drive and Push Rims

and Possible Consequences for Rehabilitation: A Case Study. In International Conference on Human Systems Engineering and Design: Future Trends and Applications (pp. 915-920). Springer, Cham.

Marszałek, J., Kosmol, A., Mróz, A., Wiszomirska, I., Fiok, K., & Molik, B. (2018). Physiological parameters depending on two different types of manual wheelchair propulsion. Assistive Technology, 1-7.

Skendraoui, N., Bogard, F., Murer, S., Ahram, T. Z., Fiok, K., & Taiar, R. (2018, July). The Musculoskeletal Contribution in Wheelchair Propulsion Systems: Numerical Analysis. In International Conference on Applied Human Factors and Ergonomics (pp. 251-260). Springer, Cham.

Fiok, K., & Mróz, A. (2015). How does lever length and the position of its axis of rotation influence human performance during lever wheelchair propulsion?. Journal of Electromyography and Kinesiology, 25(5), 824-832.

Choromański, W., Fiok, K., Potyński, A., & Dobrzyński, G. (2013). Mechatronic simulator of lever driven wheelchairs. Archives of Transport, 27.

Choromański, W., Fiok, K., & Dobrzyński, G. (2012). Optimizing the lever propelling system for manual wheelchairs. Bulletin of the Polish Academy of Sciences: Technical Sciences, 60(4), 793-800.

Choromanski, W., Dobrzynski, G., & Fiok, K. (2010). Optimization of Lever-Driven Wheelchairs. In 6th World Congress of Biomechanics (WCB 2010). August 1-6, 2010 Singapore (pp. 671-674). Springer, Berlin, Heidelberg.