



Xuechao Wang

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Research Interests: computer vision, healthcare, explainable AI, deep learning.

EDUCATION

• Ghent University	2021.09 – Present
<i>Ph.D. in Computer Science, Department of Mathematics: Analysis, Logic, and Discrete Mathematics</i>	Belgium
• Beihang University (BUAA)	2018.09 – 2021.01
<i>M.Sc. in Applied Mathematics, School of Mathematics and Physics</i>	Beijing, China
• Shandong Normal University (SDNU)	2014.09 – 2018.09
<i>B.Sc. in Mathematics, School of Mathematics and Statistics</i>	Jinan, China

PUBLICATIONS

- **PointExplainer: Towards Transparent Parkinson’s Disease Diagnosis.**
Xuechao Wang, Sven Nõmm, Junqing Huang, Kadri Medijainen, Aaro Toomela, Michael Ruzhansky.
Under review. Available on arXiv: 2505.03833.
- **LSTM-CNN: An Efficient Diagnostic Network for Parkinson’s Disease Utilizing Dynamic Handwriting Analysis.**
Xuechao Wang, Junqing Huang, Marianna Chatzakou, Kadri Medijainen, Aaro Toomela, Sven Nõmm, Michael Ruzhansky.
Computer Methods and Programs in Biomedicine, 2024.
DOI: 10.1016/j.cmpb.2024.107921. Preprint: 2311.11756.
- **Comparison of One-, Two-, and Three-Dimensional CNN Models for Drawing-Test-Based Diagnostics of Parkinson’s Disease.**
Xuechao Wang, Junqing Huang, Marianna Chatzakou, Sven Nõmm, Elli Valla, Kadri Medijainen, Pille Taba, Aaro Toomela, Michael Ruzhansky.
Biomedical Signal Processing and Control, 2023.
DOI: 10.1016/j.bspc.2023.105907. Preprint: 2309.14288.
- **Semi-Sparsity for Smoothing Filters.**
Junqing Huang, Haihui Wang, **Xuechao Wang**, Michael Ruzhansky.
IEEE Transactions on Image Processing, 2023.
DOI: 10.1109/TIP.2023.3244325. Preprint: 2107.00627.
- **A Lightweight CNN Model for Efficient Parkinson’s Disease Diagnostics.**
Xuechao Wang, Junqing Huang, Marianna Chatzakou, Kadri Medijainen, Pille Taba, Aaro Toomela, Sven Nõmm, Michael Ruzhansky.
36th International Symposium on Computer-Based Medical Systems (CBMS), 2023.
DOI: 10.1109/CBMS58004.2023.10178828. Preprint: 2302.00973.
- **An Efficient Neural Network for Parkinson’s Disease Using Dynamic Handwriting Analysis.**
Xuechao Wang, Sven Nõmm, Junqing Huang, Marianna Chatzakou, Michael Ruzhansky.
In *Extended Abstracts MWCPDE 2023*, 2024.
DOI: 10.1007/978-3-031-41665-1_11.
- **Text Matching as Time Series Matching.**
Xuechao Wang.
In *Extended Abstracts 2021/2022*, 2024.
DOI: 10.1007/978-3-031-42539-4_32.
- **Performing Particle Image Segmentation on an Extremely Small Dataset.**
Marianna Chatzakou, Junqing Huang, Bogdan V. Parakhonskiy, Michael Ruzhansky, Andre G. Skirtach, Junnan Song, **Xuechao Wang**.
In *Extended Abstracts 2021/2022*, 2024.
DOI: 10.1007/978-3-031-42539-4_33.

TALKS & PRESENTATIONS

- **Conference Presentation**, IEEE CBMS 2023, L’Aquila, Italy (TCCLS Best Student Paper Award) 2023

REFEREES

- **Prof. Michael Ruzhansky**, Ghent University&Queen Mary University of London, *michael.ruzhansky@ugent.be*
- **Prof. Sven Nõmm**, Tallinn University of Technology (TalTech), *sven.nomm@taltech.ee*
- **Prof. Haihui Wang**, Beihang University (BUAA), *whhmath@buaa.edu.cn*

PROJECTS

• Parkinson's Disease Diagnosis

Deep learning analysis of dynamic handwriting signals for early PD detection and interpretability.

• Microscopic Particle Segmentation

SAM-based foundational models for prompt-guided segmentation of diverse microscopic particle morphologies.

• Prognosis Prediction for Salivary Gland Cancer

Survival modeling using clinical and follow-up data for individualized risk prediction.

• Alloy Powder Impurity Detection

Computer vision methods for detecting impurities in alloy powder microscopy.

• Text Matching Model for Book Retrieval

BM25 recall + RAM-CNN ranking for efficient large-scale book retrieval.

• Time Series Forecasting for Prelaunch Book Sales

Forecasting framework combining historical and seasonal patterns; deployed in industry.

TECHNICAL SKILLS

Software/Platforms: Python, PyQt, Linux, HPC clusters (Slurm)

TEACHING EXPERIENCE

- **Teaching Assistant**, Higher Mathematics in Liberal Arts, Beihang University 2020
- **Mentor**, Undergraduate Innovation & Entrepreneurship Program, Beihang University 2020

AWARDS

- **COVID-19 Extension Funding**, Ghent University 2025
- **TCCLS Best Student Paper Award**, IEEE CBMS 2023
- **Full PhD Scholarship**, Ghent University 2021
- **First Class Scholarship**, Haihui Data Analysis Laboratory, Beihang University 2020
- **Second Class Scholarship**, Beihang University 2020
- **Second Class Scholarship**, Haihui Data Analysis Laboratory, Beihang University 2019
- **Second Class Scholarship**, Beihang University 2019
- **First Class Scholarship**, Shandong Normal University 2015

PATENTS

- *A Machine Learning-Based Method and System for Prognostic Survival Stage Prediction.*
Chinese Invention Patent, Publication No. **CN114496306A**, 2022.