

PERSONAL INFORMATION

Attila Biró



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WORK EXPERIENCE

Apr 2024 – Present

Research Fellow & Math AI Research Scientist

Obuda University (OE)

Becsi ut 96/B, 1034 Budapest, HU

Researcher @Physiological Controls Research Center (PHYSCON)

Researcher @University Research and Innovation Center (EKIK)

Researcher @Doctoral School of Applied Informatics and Applied Mathematics

AI researcher on bioinformatics and cybernetics projects

PhD student/researcher (Applied Mathematics)

Sep 2025 – Present

Lecturer, Researcher

Department of Electrical Engineering and Information Technology,

UMFST G.E. Palade of Targu Mures, Nicolae Iorga 1, 540088 Tg.Mures, RO

Course: Web Application Development

Course: Advanced Topics in Artificial Intelligence

Researcher @ARTEMIS Research Center

Sep 2025 – Present

Lecturer, Researcher

Department of Informatics, Sapientia Hungarian University Of Transylvania [EMTE]

Calea Sighişoarei 1c, Corunca 547367, Tg.Mures, RO

Course: Bioinformatics Algorithms

Researcher @Computational Intelligence Research Group (CIRG)

Dec 2012 – Present

CTO, CBDO

ITware, Hungary

Budafoki ut 209, 1117 Budapest, HU

Leading the technology and the development team (approx. 50 colleagues)

Business development & R+D+I with Japanese market focus

Leading the Research and Innovation Management

Feb 2021 – Present

Sports Medicine AI Research Scientist

Universidad de Málaga (UMA), Andalucía Tech,

Av/ Arquitecto Peñalosa, 3 (Teatinos Campus Expansion) 29071 Malaga, ES

Researcher @UK Biobank

Researcher @Grupo de Investigación Clinimetria (PAIDI CTS-631)

PhD student/candidate/researcher (Health Sciences) (2021.02-2024.09)

Jun 2009 – Present Owner & CEO

4Dent Healthcare and Technology,
Fűrj utca 2, 2112 Veresegyház, HU
Project management, business consultancy
Research, Development and Innovation Projects (R+D+I)
Dentistry services in multiple locations

Feb 2021 – Sep 2024 Bioinformatics AI Research Scientist

IBIMA Plataforma Bionand
Andalucía Tech, Malaga, ES
Researcher @Grupo de Investigación Clinimetria (IBIMA F-14)
Research domains: AI, sports medicine, bioinformatics

Sep 2020 – Sep 2024 Artificial Intelligence (AI) Research Scientist

UMFST G.E. Palade Tg.Mures,
Nicolae Iorga 1, 540088 Tg.Mures, RO
Researcher @Computer Science and Engineering Department
PhD student/candidate/researcher (Informatics)

Dec 2006 – Dec 2012 COO, PM & CBDO

Somody Group, Budapest, HU
Gyógyszerfutár Ltd: COO and Senior Tech PM (Jan 2010 – Dec 2012)
ESZM Ltd: CBDO, Senior Business PM (Oct 2009 – Dec 2012)
Somody Ltd: IT Consultant, Senior PM (Dec 2006 – Dec 2012)

Apr 2001 – Oct 2009 CIO, PM & CBDO

Csiki-Bege Group, Budapest, HU
Chief Business Development Manager (Jan 2006 – Oct 2009)
Project Director on Outsources projects (Aug 2006 – Oct 2009)
Technical Project Manager (Jan 2003 – Oct 2009)
CIO (Apr 2001 – Oct 2009)

Mar 2000 – Apr 2001 Software Developer

Integrasoft, Tg.Mures, RO
Developing several products ranging from audio/video teleconferencing
to home and industrial automation solutions
Tech Stack: Java, C, C++

Nov 1996 – Apr 2001 System Administrator

Petru Maior University (UPM), Tg.Mures, RO
System and network administration
Software and IT infrastructure management
Infrastructure: Unix/Linux/Solaris

References Prof. Dr. Antonio Cuesta-Vargas, Universidad de Málaga, acuesta@uma.es
Prof. Dr. Levente Kovács DSc, Obuda University, Budapest, HU, kovacs@uni-obuda.hu
Prof. Dr. László Szilágyi, Obuda University, Budapest, HU, szilagyi.laszlo@uni-obuda.hu
Prof. Dr. Sándor M. Szilágyi, UMFST G.E. Palade of Tg. Mures, RO, sandor.szilagyi@umfst.ro
Prof. Dr. Wen Tang, Bournemouth University, UK, wtang@bournemouth.ac.uk

EDUCATION

- 2025 – Present **PhD in Applied Mathematics**
Obuda University (OE), Budapest, HU
Research line: Development of Advanced Mathematical Optimization Models and Methods for Optimal Team Formation in Competitive Sports
- 2021 – 2024 **PhD in Health Sciences**
University of Malaga (UMA), Málaga, ES
Grade: Sobresaliente /Summa cum laude (Excellent)
- 2020 – 2024 **PhD in Informatics**
UMFST G.E. Palade of Targu Mures, RO
Grade: Summa cum laude (Excellent)
- 2001 – 2002 **M.Eng. in Automation in Energetics**
Petru Maior University of Targu Mures (UPM), RO
Advanced automatic systems of management of the industrial and energetic processes
- 1996 – 2001 **M.Eng. in Industrial Automation**
Petru Maior University of Targu Mures (UPM), RO
Automatics and industrial information technology

HONORS AND AWARDS

Best Student Paper Award

IEEE 25th International Symposium on Computational Intelligence and Informatics (CINTI 2025), awarded by IEEE Hungary Section, Obuda University

PhD in Health Sciences, "Sobresaliente" (Excellent)

Spain, Registro Nacional de Títulos: 2025/020275

PhD in Informatics, "Summa Cum Laude" (Excellent)

Romania, Ministry Order Number: Ordin MEC nr. 3388/24.02.2025

1st price award for the best indexed ISI article published in the academic year 2022/2023

INTERNATIONAL CONFERENCE OF PHD STUDENTS AND YOUNG DOCTORS, GE Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures

1st price award for the best indexed ISI article published in the academic year 2021/2022)

INTERNATIONAL CONFERENCE OF PHD STUDENTS AND YOUNG DOCTORS, GE Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures

LICENSES AND CERTIFICATIONS

Categories [Scientific Certificates] [Technnology / Sales / Leadership Certificates]

RESEARCH ACTIVITIES

Indexes	Google Scholar Stats on January 26, 2026: Total citations: 435, h-index: 10, i10-index: 12
Research Profiles	[Github.io] [ORCID] [Google Scholar] [ResearchGate] [Loop] [Lens] [IEEE Xplore]
Section Editor	BMC Sports Science Medicine and Rehabilitation MDPI Applied Sciences MDPI Sensors
Peer Reviewer	PeerJ Computer Science MDPI Applied Sciences JMIR Serious Games IEEE International Conference on Systems, Man, and Cybernetics (SMC) Springer Interdisciplinarity in Engineering (Inter-Eng)
Research stack	LaTeX, Python, Google Colab Pro, Tensorflow, scikit-learn, numpy, pandas, pycaret, scipy, Librosa, Roboflow, opencv, Matlab, Rayyan, Quillbot, Turnitin, Semantic Scholar, Elicit, Research Rabbit, Scite, Quillbot, Anaconda, Overleaf, SPSS
Research Groups	Physiological Controls Research Center (PHYSCON), Budapest, Hungary Grupo de Investigación Clinimetria (PAIDI CTS-631), Malaga, Spain Grupo de Investigación Clinimetria (IBIMA F-14), Malaga, Spain Computational Intelligence Research Group (CIRG), Targu Mures, Romania ARTEMIS Research Center, Targu Mures, Romania

PERSONAL SKILLS

Mother tongue	Hungarian, Romanian				
Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
	English	C1	C2	C1	C1
	German	A2	A2	A2	A2
Tech stack on projects led	Java, NodeJS, Spring Boot, JavaScript, Angular, Vue, TypeScript, RoR, PWA, SPA, PHP, Laravel, LAMP, C++, Stripe, MySQL, PostgreSQL, MSSQL, Firebase, MongoDB, Material Design, CSS, SCSS, AWS, GCP, Git, Github, Bamboo, Jenkins, Gitlab CI, FlywayDB, SonarQube, Selenium, Gherkin, Cucumber, Testlink, Testrail, SoapUI, Appium, Docker, Android/iOS, Copilot, Agile, SCRUM, Kanban, TDD, BDD, Waterfall, Hybrid, V-model, RUP, Bugzilla, JIRA, Redmine, Spira, Project, Merlin, Visio, Draw.io, Atlassian products, Photoshop, Illustrator, Canva, Figma, Xmind, Sketch, AdobeXD				
Grant systems	DIMOP, GVOP, HEFOP, KMOP, GOP, GINOP, EUREKA, HU-RIZONT, VEKOP, H2020, RISE, Horizon Europe, AAL, INNOWIDE, EUROSTARS				
Quality management	ISO 9001, ISO 14001, ISO 27001				
Strengths	creativity, multitasking, lead by example, motivator & leader, think-global, act-local, EQ, "no-limits" attitude, active listener				

PROJECT PORTFOLIO

Projects	Detailed List of Major Projects & Contributions History
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RECENT PUBLICATIONS

- [1] J. Martín-Martín, C. Roldán-Jiménez, I. De-Torres, **Attila Biró**, and et al. "Assessment of the Quality of Mobile Applications (Apps) for Management of Low Back Pain Using the Mobile App Rating Scale (MARS)". In: *International Journal of Environmental Research and Public Health*, MDPI 17.9209 (2020).
- [2] J. Martín-Martín, C. Roldán-Jiménez, I. De-Torres, **Attila Biró**, and et al. "Behavior Change Techniques and the Effects Associated With Digital Behavior Change Interventions in Sedentary Behavior in the Clinical Population: A Systematic Review". In: *Frontiers in Digital Health* 3 (2021).
- [3] J. Martín-Martín, A. Muro-Culebras, C. Roldán-Jiménez, **Attila Biró**, and et al. "Evaluation of Android and Apple Store Depression Applications Based on Mobile Application Rating Scale". In: *International Journal of Environmental Research and Public Health*, MDPI 18.12505 (2021).
- [4] Antonio Muro-Culebras, Adrian Escriche-Escuder, Jaime Martin-Martin, **Attila Biró**, and et al. "Tools for Evaluating the Content, Efficacy, and Usability of Mobile Health Apps According to the Consensus-Based Standards for the Selection of Health Measurement Instruments: Systematic Review". In: *JMIR mHealth uHealth* 9.12 (2021), e15433.
- [5] J. Martín-Martín, L. Wang, **Attila Biró**, and et al. "The Validity of the Energy Expenditure Criteria Based on Open Source Code through two Inertial Sensors". In: *Sensors*, MDPI 22.2552 (2022).
- [6] J. Martín-Martín, A. Jiménez-Partinen, **Attila Biró**, I. De-Torres, A. Escriche-Escuder, M. González-Sánchez, A. Muro-Culebras, C. Roldán-Jiménez, M. Ruiz-Muñoz, F. Mayoral-Cleries, and et al. "Reliability Study of Inertial Sensors LIS2DH12 Compared to ActiGraph GT9X: Based on Free Code". In: *Applied Sciences*, MDPI 12.749 (2022).
- [7] **Attila Biró**, K.T. János-Rancz, L. Szilágyi, A.I. Cuesta-Vargas, J. Martin-Martin, and S.M. Szilágyi. "Visual Object Detection with DETR to Support Video-Diagnosis Using Conference Tools". In: *Applied Sciences*, MDPI 12.5977 (2022).
- [8] **Attila Biró**, A.I. Cuesta-Vargas, J. Martin-Martin, L. Szilágyi, and S.M. Szilágyi. "Synthesized Multilanguage OCR Using CRNN and SVTR Models for Realtime Collaborative Tools". In: *Applied Sciences*, MDPI 13.4419 (2023).
- [9] **Attila Biró**, S.M. Szilágyi, L. Szilágyi, J. Martin-Martin, and A.I. Cuesta-Vargas. "Machine Learning on Prediction of Relative Physical Activity Intensity Using Medical Radar Sensor and 3D Accelerometer". In: *Sensors*, MDPI 23.3595 (2023).
- [10] A.I. Cuesta-Vargas, **Attila Biró**, A. Escriche-Escuder, and et al. "Effectiveness of a gamified digital intervention based on lifestyle modification (iGAME) in secondary prevention: a protocol for a randomised controlled trial". In: *BMJ Open* 13 (2023).
- [11] **Attila Biró**, A.I. Cuesta-Vargas, and L. Szilágyi. "Precognition of mental health and neurogenerative disorders using AI-parsed text and sentiment analysis". In: *Acta Universitatis Sapientiae – Informatica* 15.2 (2023), pp. 359–403.
- [12] **Attila Biró**, S.M. Szilágyi, and L. Szilágyi. "Optimal training dataset preparation for AI-supported multi-language real-time OCRs using visual methods". In: *Applied Sciences*, MDPI 13.24 (2023), p. 13107.
- [13] **Attila Biró**, A.I. Cuesta-Vargas, and L. Szilágyi. "AI-Assisted Fatigue and Stamina Control for Performance Sports on IMU-Generated Multivariate Times Series Datasets". In: *Sensors*, MDPI 24.1 (2024), p. 132.
- [14] L. Ramírez-Pérez, C. García-Conejo, M. Trinidad-Fernández, **Attila Biró**, and et al. "Assessment of the Quality of Technophilia and Technophobia Validated Questionnaires for Management of Digital Health Interventions: Systematic Review and Delphi Consensus. (Preprint)". In: *JMIR Publications, Journal of Medical Internet Research* (2024).

- [15] **Attila Biró**, László Barna Iantovics, László Fekete, and Gyula László Fekete. "Prototype of a multimodal AI system for vitiligo detection and mental health monitoring". In: *Frontiers in Medicine* 2025.12 (2025).
- [16] **Attila Biró**, Levente Kovács, and László Szilágyi. "Bioinformatics-Inspired IMU Stride Sequence Modeling for Fatigue Detection Using Spectral–Entropy Features and Hybrid AI in Performance Sports". In: *Sensors, MDPI* 26.2 (2026), p. 525.
- [17] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and Sándor Miklós Szilágyi. "Real-time disease and COVID-19 detection pipeline from voice for performance sports". In: *IEEE International Conference on Systems, Man, and Cybernetics (SMC), Special Section Cyber*. Honolulu, Oahu, HI, USA: IEEE, IEEE Xplore, 2023, pp. 2309–2314.
- [18] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and László Szilágyi. "sRPE and ACWR to control fatigue levels and minimize injuries in performance sports". In: *IEEE International Conference on Systems, Man, and Cybernetics (SMC), Special Section Cyber*. Honolulu, Oahu, HI, USA: IEEE, IEEE Xplore, 2023, pp. 2808–2813.
- [19] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and László Szilágyi. "Applied AI for real-time detection of lesions and tumors following severe head injuries". In: *IEEE 21st International Symposium on Intelligent Systems and Informatics (SISY)*. Pula, Croatia: IEEE, IEEE Xplore, 2023, pp. 653–658.
- [20] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and Sándor Miklós Szilágyi. "Predictive sports strategy approach using YOLO and YOLO-NAS in performance sports". In: *IEEE 21st International Symposium on Intelligent Systems and Informatics (SISY)*. Pula, Croatia: IEEE, IEEE Xplore, 2023, pp. 303–308.
- [21] **Attila Biró**, Katalin Tünde Jánosi-Rancz, and László Szilágyi. "Real-time Artificial Intelligence Text Analysis for Identifying Burnout Syndromes in High-Performance Athletes". In: *IEEE 22nd World Symposium on Applied Machine Intelligence and Informatics (SAMI)*. Stará Lesná, Slovakia: IEEE, IEEE Xplore, 2024, pp. 253–258.
- [22] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and László Szilágyi. "AI-controlled training method for performance hardening or injury recovery in sports". In: *IEEE 22nd World Symposium on Applied Machine Intelligence and Informatics (SAMI)*. Stará Lesná, Slovakia: IEEE, IEEE Xplore, 2024, pp. 259–264.
- [23] **Attila Biró**. "Gamification, GenAI and Reinforcement Learning as Motivational Assets in Performance Sports". In: *IEEE 18th International Symposium on Applied Computational Intelligence and Informatics (SACI)*. Timisoara, Romania: IEEE, IEEE Xplore, 2024, pp. 315–320.
- [24] **Attila Biró**, Antonio Ignacio Cuesta-Vargas, and László Szilágyi. "Enhanced Spatial-Temporal Analysis for EEG-Based Microsleep Detection: Integrating Kalman Filtering with Voronoi Tessellation and Adaptive Coverage Control". In: *2024 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*. Kuching, Sarawak, Malaysia: IEEE, IEEE Xplore, 2025, pp. 4855–4860.
- [25] **Attila Biró** and László Szilágyi. "Gamified AI-Driven Video Monitoring for Enhanced Rehabilitation in Performance Sports". In: *2025 IEEE 12th International Conference on Computational Cybernetics and Cyber-Medical Systems (ICCC)*. Mahe Island, Beau Vallon, Seychelles: IEEE, IEEE Xplore, 2025, pp. 47–52.
- [26] **Attila Biró** and László Szilágyi. "An Enhanced AI Pipeline for the Detection and Preliminary Diagnosis of Pneumonia and Pulmonary Malformations in Athletes with YOLOv11". In: *2025 IEEE 29th International Conference on Intelligent Engineering Systems (INES)*. Palermo, Italy: IEEE, IEEE Xplore, 2025, pp. 231–236.
- [27] **Attila Biró**, Levente Kovács, and László Szilágyi. "Game-Based Learning and Gamified Efficiency for Team Performance Estimation in Professional Basketball". In: *2025 International Conference on Emerging eLearning Technologies and Applications (IC-ETA)*. Stary Smokovec, Slovakia: IEEE, IEEE Xplore, 2025, pp. 95–100.

- [28] **Attila Biró**, Levente Kovács, and László Szilágyi. "Tactical Lineup Changes Simulation in Competitive High-Speed Team Sports via Hoeffding's Inequality and Concentration Bounds". In: *2025 IEEE 25th International Symposium on Computational Intelligence and Informatics (CINTI)*. Budapest, Hungary: IEEE, IEEE Xplore, 2025, pp. 713–720.
- [29] **Attila Biró**, Levente Kovács, and László Szilágyi. "Disrupting the Critical 10 Seconds: An Optimization Framework for Lineup Changes and Strategy Shifts in Ice Hockey". In: *2025 IEEE 25th International Symposium on Computational Intelligence and Informatics (CINTI)*. Budapest, Hungary: IEEE, IEEE Xplore, 2025, pp. 000805–000812.

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Attila Biró, 2xPhD [IT, Health Sciences]