

# Curriculum vitae

## Personal data

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## Education

- 1998 – 2004. József Katona Grammar School, Kecskemét  
2004 – 2010. MSc in Mechanical Engineering, Faculty of Mechanical Engineering (GPK) Budapest University of Technology and Economics (BME)  
2009. Exchange student at Graz University of Technology at Faculty of Mechanical Engineering and Economic Sciences  
2010 – 2013. PhD Student in Fluid Mechanics, Géza Pattantyús-Ábrahám Doctoral School of Mechanical Sciences, Faculty of Mechanical Engineering (BME GPK),  
2013 – 2016. Assistant lecturer at Department of Hydrodynamic Systems (HDS BME GPK)  
2016. PhD degree with Summa cum laude rating  
Title of the PhD thesis: Experimental and Numerical Investigation of the Flow Field Inside a Dense Slurry Mixer  
2017 – Assistant professor at Department of Hydrodynamic Systems (HDS BME GPK)

## Scientific, professional activities, work experience

2007. Status assessment of drinking water wells in Szentendre under the operation of the Budapest Waterworks, studying their economic operation in the research of Department of Hydrodynamic Systems (HDS)  
2008. July Investigations of submersible and booster pumps (Kecskemét Waterworks)  
2008, 2009. Demonstrator at the Dept. of Hydrodynamic Systems  
2010 – 2019. As a staff member of the Department of HDS participated in the following industrial and expert works in 9 cases as a supervisor:
- 2010 – 2013. Experimental and Numerical Investigation of the Flow Field Inside a Dense Slurry Mixer (partner: GEA EGI Zrt.)
  - 2013. Measuring the Characteristic Curves of the Pumps of the Geothermal System in Miskolc (partner: PannErgy Nyrt.), supervisor
  - 2015. Measurement of Characteristic Curves of Window-Washer Pumps and Accessories, Project Report I., II., III. (partner: Robert Bosch Kft.), supervisor
  - 2015. Examination of Failures in Sewage Pipeline of Sewage Treatment Plant in Szigetszentmiklós (partner: Budapest Waterworks)

- 2015-2016. Structural Analysis of Water Meters (partner: DRV Zrt.), supervisor
- 2016. Pressure Measurement in a Sewage System at Budaörs, (partner: Arad Hungária Kft.)
- 2016. Pressure Test of Viking Johnson UltraGrip Coupling Pipeline Element (partner: Kristály Kft.), supervisor
- 2017. Cost Estimation Study for Kayak-Canoe Test Pool (partner: BJMOKK Kft, Hungarian Kayak Canoe Association), supervisor
- 2017. Replacement of Mancher at the Sopron Wastewater Treatment Plant with Machine Grid and Raw Wastewater Elevation Suction Area Expansion Planning (partner: Sopron Waterworks), supervisor
- 2017. NPSH<sub>r</sub> Measurements of Flowserve Booster Pumps (partner: D-Tech Kft.), supervisor
- 2018. Kayak Paddle Development: Preliminary Study and Measurements (partner: BestPaddle Kft.), supervisor
- 2018. Laboratory Test of the New Suction Pool at the Sewage Treatment Plant in Sopron, (partner: Sopron Waterworks), supervisor
- 2019. Development of a new kayak paddle, creation of a prototype (partner: BestPaddle Kft.), supervisor
- 2019. Investigation of a rotary positive displacement ball type pump (partner: Gömbmotor Kft.), supervisor
- 2019. Personal consultation and its preparation on the flow aspects of a pump measuring station (partner: Ometrys Kft.), supervisor
- 2019. Personal consultation, laboratory presentation and its preparation on the topic of flow measurement (partner: Hyundai TCH.), supervisor
- 2020. Flow test and qualification of pump test station (partner: ASG Vízgépek Kft.), supervisor
- 2021. The development of an improved submersible water pump suitable for domestic use and the specific production technology that is also competitive on the global market (partner: Elpumps Kft.), supervisor

2016 – 2021 Head of the Laboratory of the Dept. of Hydrodynamic Systems  
 2017 – Public member of the Committee for Heat Transfer and Fluid Flow, Hungarian Academy of Sciences, (Identification number: 10050778)  
 2018 – 2019 Junior board member of Hungarian Water Association (HWA)

2019. Nov. Member of the Board of the Student Conference at BME, Fluid dynamics Section  
 2020. Mar. Dulovics Dezső Symposium, Executive Chairman Water Supply Systems Section  
 2021. Mar. Dulovics Symposium, Executive Chairman, Network Hydraulics Section

2021. Apr. OGÉT 2021 Conference (online), Executive Chairman General Engineering Section
- 2021-2023. Elected member of the Committee for Heat Transfer and Fluid Flow, Hungarian Academy of Sciences
2021. Apr. – Process Engineering Specialization, Specialization Manager (BME)
2022. Mar. Dulovics Symposium, Executive Chairman, Network Hydraulics Section
2022. Apr. OGÉT 2022 Conference, Executive Chairman General Engineering Section

### **Grants and Awards**

2008. 2<sup>nd</sup> prize at the Student Conference  
Title: Dynamic Analysis of Overpressure Protection in Hydraulic Systems
2009. BOSCH Award in IAESTE BOSCH InPulse – “Race for the time!”  
competition for engineers
2015. Award of Dean of BME GPK
2017. Dr Dulovics Dezső Junior Symposium 2017, 1<sup>st</sup> place  
Title of the study: Numerical Investigation of Loss Coefficient of Elbow in the Case of Non-Newtonian Sludge
2018. Award of Rector of BME
- 2019-2022 János Bolyai Research Scholarship of Hungary.
- 2019-2020 New National Excellence Program of the Ministry of Innovation and Technology Hungary (ÚNKP-19-4-BME-443)
- 2020-2021 New National Excellence Program of the Ministry of Innovation and Technology Hungary (ÚNKP-20-5-BME-156)
- 2021-2022 New National Excellence Program of the Ministry of Innovation and Technology Hungary (ÚNKP-21-5-BME-381)
2020. Award of Rector of BME
- 2019., 2020, 2021, 2022: OHV TOP 100 (among BME's 100 best lecturers)
2022. Faculty of Mechanical Engineering Outstanding Instructor Award
2022. *Conlegner Károly* Teaching Award (BME and MNB: Hungarian National Bank)

### **Publications**

Current MTMT link: <https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10042415>

There are seven journal articles (including four in impact factor journals; 2 in D1, 1 in Q1 and 5 in Q3 or Q4), two foreign language and nine Hungarian conference articles; specifics can be found in the publication list (based on MTMT). In addition, publications in a Hungarian-language journal (*Hírcsatorna*; Pumps, Compressors, Vacuum Pumps). Criticism of 4 English journal articles and 1 PhD thesis.

### **Further professional presentations:**

2013. Sept. Business Meeting of Committee for Heat Transfer and Fluid Flow, Hungarian Academy of Sciences, Budapest,  
Title: Investigation of the Flow Field Inside a Dense Slurry Mixer
2017. June. National Water Utility Conference, Tapolca,  
Title: Numerical Investigation of Loss Coefficient of Elbow in the Case of Non-Newtonian Sludge
2017. July Scientific Day of BME-Gedeon Richter, Budapest,  
Title: Investigation of Hydrodynamic losses of Pipe Elements in the Case of Non-Newtonian Fluids
2017. Sept. Hungarian Hydrological Society, Water Supply Division, Budapest,  
Title: Behavior of Pumps During Transport of Two-Phase Fluids
2017. Oct. and 2018. Febr. Talent Management Section of BME HDS, Budapest,  
Title: Water Towers from Multiple Angles
2018. June. National Water Utility Conference, Eger, Title: Behavior of Pumps During Transport of Two-Phase and Viscous Fluids
2018. Nov. Professional Day, Innovation in Wastewater and Drinking Water Treatment, Hungarian Water Association (HWA), Title: CFD Simulations on Water and Wastewater technology
2018. Dec. Secondary School Career Day, St. II. János Pál Primary and Secondary School,  
Title: The Mechanical Engineer *who solve all the problems.*
- 2020., 2021., 2022. Pumping of non-Newtonian and multiphase fluids. (In the framework of the ÚNKP competition)
- 2020., 2022. Excerpts from the topic of hydrodynamic systems (In the framework of the ÚNKP competition)
- 2020., 2022. Water Towers from Multiple Angles (In the framework of the ÚNKP competition)

### **Language**

English Upper-intermediate oral and written (Type "C", no.: 1219490 and FC060-04800)

German Upper-intermediate oral and written (Type "C", no.: 292606 and A 352712)

### **Teaching**

Tutor of laboratory and practice course in Hungarian, English, and German; project consultations, subject responsibilities, educational organization in the following subjects.

- Introduction of Mechanical Engineering (BSc), in Hungarian and German
- Fluid Machinery (BSc) in Hungarian
- Fluid Flow Systems (BSc, lecturer of course) in Hungarian
- Measurement, Signal Processing, Electronics (MSc) in Hungarian
- Measurement Technique and Processes (BSc) in Hungarian and English
- Analysis of Technical and Economical Data (BSc) in Hungarian
- Renewable Energy Sources (BSc, part lecturer of course) in Hungarian
- Selected Chapters of Applied Fluid Dynamics (MSc) in Hungarian

- Hydro Energy (MSc, part lecturer of course) in Hungarian
- Flow in Pipe networks (MSc, part lecturer of course) in Hungarian

Co-author of the lecture note on Fluid Flow Systems in Hungarian.

Thesis Supervision (BSc, MSc, Student Conference)

- Benjamin Csippa: Numerical Investigation of a Highly Rotating Flow in a Cylindrical Mixer, in Hungarian
- Tamás Klespitz: Numerical and Experimental Investigation of the Fluid-Air Jet on the Flat Wall, in Hungarian
- Eszter Bengery: Energy-Saving, Light-Weight Family House Heating System Building Design, in Hungarian
- Karolina Eschbach: Design and Control of Air Networks in Centrifugal Cleaners with Centrifugal Fan, in Hungarian
- Tamás Deák: Numerical Investigation of Non-Newtonian Flow in Straight Pipe and Pipe Elements, in Hungarian
- Houssam Mougharbel: Hydraulic Analysis of a Water Distribution System (Zone of Balf), in English
- Bálint Buzai: Numerical Investigation of Non-Newtonian Flow in Straight Pipe and Pipe Elements, in Hungarian
- Dániel Nagy: Examination of a Water Purification Method Based on Hydrodynamic Cavitation (Student Conference, 1<sup>st</sup> place in BME, 2<sup>nd</sup> place in National Conference), in Hungarian
- Kristóf Deli: Experimental Investigation of Hydrodynamic Losses in Pipe Fittings in the Case of Non-Newtonian Fluid, in Hungarian
- Máté Bíbok: Numerical Investigation of Non-Newtonian Flow in Straight Pipe and Pipe Elements, in Hungarian, in Hungarian
- Orsolya Karay: Experimental Investigation of the Suction Pool of Sewage Pumps, in Hungarian
- István Kálmán Szalai: Determining the Flow Rate of an Open-Surface Channel Using a Parshall Channel, in Hungarian
- Dániel Nagy: Investigation of Water Purification Method Based on Hydrodynamic Cavitation, in Hungarian
- Abdulaziz Maxime Yusuf: Hydraulic Analysis of a Water Distribution System (Zone of Csáford) in English
- Márton Zagyva: Testing and Commissioning of Velocity Flow Meter, in Hungarian
- Ádám Gripp: Experimental Investigation of Radial Pump Characteristics for Water and Non-Newtonian Fluid, in Hungarian
- Gergő Márk Horváth: Experimental Investigation of Vibration Caused by Cavitation of a Centrifugal Pump in the Case of Water and Non-Newtonian Fluid, in Hungarian

- Máté Bíbok: Numerical Investigation of Non-Newtonian Flow in Straight Pipe and Pipe Elements (Student Conference, 2<sup>nd</sup> place in BME, Award in National Conference), in Hungarian
- Ádám Gripp, Gergő Márk Horváth: Experimental Investigation of Characteristic Curves and Vibration Caused by Cavitation of a Centrifugal Pump in the Case of Water and Non-Newtonian Fluid (Student Conference, 3<sup>rd</sup> place in BME), in Hungarian
- Péter Szalai: Control engineering testing of multi-pump circulating systems (2019) in Hungarian
- Dávid Lajos Lukácsi: Experimental investigation of radial pump characteristics for water and viscous fluids (2019, 2020: 2<sup>nd</sup> prize at the Student Conference in BME, 2021.) in Hungarian
- Dániel Pető: Experimental investigation of radial pump characteristic curves for water and non-Newtonian fluid (2019) in Hungarian
- Ádám Magyar: Experimental investigation of radial pump characteristics for water and viscous media (2020) in Hungarian
- Tamás Borza: Testing of a CTA system for determining the velocity of flowing air and water (2020) in Hungarian
- Levente Radics: Numerical CFD analysis of the flow of a power-law fluid in a pipeline (2020) (Student Conference in BME, BSc thesis) in Hungarian
- Martin Minkó: Numerical analysis of Bingham plastic fluid flow in a straight pipe (2020) (Student Conference, 3<sup>rd</sup> place in BME, 2021.) in Hungarian
- Márton Németh: Numerical flow analysis of a cyclone type mixer for a non-Newtonian fluid (2021) in Hungarian
- Péter Simon: CFD-based investigation of a power-law fluid flow in a diffuser (2021.) in Hungarian
- Gergely Dombóvári: CFD-based investigation of fluid flow in rough pipes with a Herschel-Bulkley fluid (2021.) in Hungarian
- Csaba Rejtő: CFD-based investigation of non-Newtonian fluid flow in a rough pipes (2021.) in Hungarian

### **Software**

Matlab, Mathematica, Ansys CFX, Fluent, Cosmos, AutoCAD, MS Office.

### **Others**

Driving license (Category B) (2002, approx. 400 000 km)

Active sports life (volleyball; running, maximum distance: 42 195 m)

First Aid Training (2021.)

Budapest, 2022.08.02.

Péter Csizmadia