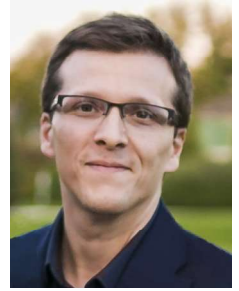


DR. ROBERT T. FEKETE

R&D ENGINEER, SOFTWARE DEVELOPER

Solution- and teamwork-oriented software developer in multidisciplinary engineering with responsible R&D management experience. Highly-educated and versatile R&D engineer in bi-psychologically system modelling and human-centered design. Characterized by positive, explorer attitude, and adaptive mindset. Passionate about problem-solving, life-long learning and effective mentoring, lately focus on deep learning applications.



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dr-robert-t-fekete.github.io

WORK EXPERIENCE

Senior R&D and Software Engineer at Medicontur Medical Engineering Ltd.

2018 – Present

Achievements and Responsibilities:

- Developed and implemented new **remote diagnostic** method and **software** (tools: Python, JavaScript) in color vision deficiency measurement that improved diagnostic accuracy from about 60% to nearly 100%.
- Developed and implemented new **evaluation software** (tools: Python, C#) that quickened tolerance assessment procedure as a part of the TQM system.
- Research and developed original **state of the art models** and **procedures** (tools: Excel VB, Python) in color vision correction that reduced filter design time in half.
- Designed new **color vision correction filters** that significantly enhanced color identification and discrimination in the same time (tools: Excel VB, Python).
- Designed, organized and evaluated extensive **patient experiment series**, that verified effects of new color correction filters (tools: color vision measurement instruments).
- **Leading** diagnostic **subunit** and **software development** workflows (inhouse and outsourced) (tools: Python, C#, C++, JavaScript).

Senior Lecturer at Budapest University of Technology and Economics,

Faculty of Mechanical Engineering, Department of Mechatronics, Optics and Mechanical Engineering Informatics

2017 – Present

Achievements and Responsibilities:

- Given every **Applied Informatics lecture** for mechanical engineers, energetic engineers and industrial product development engineers at the Faculty of Mechanical Engineering (tools: C#, Python, HTML, CSS, JavaScript).
- Given **lectures** in the field of **Intelligent Machines** and **Visualization Technics**.
- Participating in departmental **research programmes** and **industrial projects** in the field of **applied informatics and machine learning** (tools: Python, C#).
- Representing Department in the Unified Psychological Research Ethics Committee of Hungary, and **preparing ethical reviews**.

Senior Research and Development Expert at HungaroControl

Hungarian Air Navigation Services Co.

2017 – 2018

Achievements and Responsibilities:

- Designed **disruptive R&D concepts** in the field of **AI** and **system automatization** in connection with air traffic control, that could enhance performances and reduce mental effort of air traffic controllers.
- Planned, implemented and evaluated **HMI experiments**, recommended **optimization suggestions** for control systems and **software ergonomics re-design**, that could contribute to reduction of mistakes.
- Coordinated and supervised contractual **R&D projects** with external partners, that could increase air traffic safety.
- Managed international and national tender issues and prepared **national** and **EU** development **proposals** in connection with air traffic safety (for instance drones).
- **Coordinating** of the R&D **subunit**, resource allocation, distribution of tasks.

TECHNICAL SKILLS

(for details see the left)

- **Software development** (Python, C#, JavaScript, C++, Java, VB, Git, Advanced Excel, MySQL, HTML, CSS, TensorFlow/Keras),
- **Multidisciplinary team leading**,
- **Human-centered product design**,
- **CAD** and Simulation systems (**SolidWorks**, AutoCAD, Solid Edge, LabVIEW, ANSYS),
- **Teaching, Mentoring, Coaching**,
- R&D project management,
- Psychology and Ergonomics,
- Industrial product development,
- Graphics (Photoshop, InDesign, CorelDraw, Inkscape, 3ds Max),
- Presentation

SOFT SKILLS

(for details see the left)

- Quick learning ability,
- Operative and practical workstyle,
- Adaptability, flexibility
- Problem solving, decision-making,
- Self-management, leadership
- Time management, prioritization,
- Analytical skills,
- Interdisciplinary approaching,
- Creative and innovative thinking,
- Teamwork and Cooperation,
- Positive and energetic attitude,
- Confidence

Senior Assistant Professor at Budapest University of Technology and Economics,

Faculty of Mechanical Engineering, Department of Mechatronics, Optics and Mechanical Engineering Informatics

2008 – 2017 (2006 – 2008 as PhD student)

Achievements and Responsibilities:

- Software development, Scientific research, Mechanical engineering and Project management in academic and industrial R&D projects:
 - Social-robotics (**Modelled bio-psychologically systems**, that used for prediction of living creatures' behaviour; **Designed and implemented artificial and bio-inspired behaviour engines** for mobile robots in public spaces; Developed and implemented **virtual social-robotics software agent** for self-driving cars, that could reduce anxiety of passive driver; **Built and programmed autonomous explorer mobile robot** for social robotics experiments; Online and **remote control of mobile robots** for e-laboratory system, that used for virtual collaboration; Implemented **3D space reconstruction system** for autonomous robot navigation; **tools: LabVIEW, C#, C++, OpenCV, Java**).
 - Non-invasive blood glucose estimation (**Built software and optics-based instrument** to measure light transmission of human tissue, that could lead to the glucose measurement without any needle prick; **tools: LabVIEW, C#**).
 - Pupillometry (**Built optics-based instrument and image processing software** to measure direct and consensual light reflexes, that helps to specify the location of brain injury; **tools: LabVIEW**).
 - Adaptive transportation indicators (**Developed and implemented software and procedure** to measure psychophysical responses of drivers in braking situations using proportional brake lights; **Created effect analysis** of adaptive brake lights; Modelled human-machine-environment systems (**ergonomics**); **Designed heart rate variability measurement** procedure for simulator experiments, that used for determination actual mental effort during any activity; **Designed proportional vehicular display** making the traffic safer; **tools: VB, C#, LabVIEW**).
 - Designed and implemented a precision mechanical equipment for retina observation (**tool: SolidWorks, ANSYS**). Analysis and debugging of control software for a windscreen production line (**tools: Visual Studio, VB**).
- **Giving lectures, leading seminars**, taking responsibilities for subjects, evaluating students in the following fields: **Software engineering** (**tools: C#, Python, C++, VB**), Applied computer science, **CAD**, VEM, 3D modelling systems (**tools: SolidWorks, AutoCAD, ANSYS, 3ds MAX, Blender, Maya, Cinema4D**), **Intelligent machines**, Artificial intelligence, Sensors and actuators, **Measurement technology and statistics** – In English, Visualization and Presentation technics (**tools: Inkscape, CorelDRAW, Python, C++, VB**), Biomechatronical engineering modelling and simulation (**tools: Scilab, Matlab**), Lighting and colour technology (optics and human vision).

Software Developer, CEO at Innoco Ltd.

2014 – 2018

Achievements and Responsibilities:

- Developed and implemented Internet based remote **control system of a mobile robot** for educational purposes (with created **educational materials**) for The Arctic University of Norway (**tools: C++, OpenCV**).
- Developed and implemented **software of a psychophysical** (testing different modalities) **measurement station** (**tool: C#**).
- Conducted **trainings** in the topic of **engineering leadership** and **coaching** methods.
- Partners (5-10 colleagues) **coordination, resource allocation**.

Product Development and Software Engineer at Cytotech medical engineering Ltd.

2005 – 2006

Achievements and Responsibilities:

- Redesigned **user interface (HMI and UX design)** of a medical robot for blood serology laboratories that improved usability and accuracy using (**tool: C++**).
- Redesigned and documented feature-based, 3D **CAD models and technical drawings of medical instruments** that was the first non-outsourced application of CAD system at the company (**tools: SolidEdge, SolidWorks, AutoCAD**).
- Negotiations with suppliers, implementing orders.

PROFESSIONAL TRIPS

- **Chuo University**
Visiting professor
Tokyo, Japan
2016 and 2017
Coordination of ethorobotics researches and discussions with international partner scientists
- **UiT The Arctic University of Norway**
Visiting professor
Narvik, Norway
2016
Coordination of mobile robotics researches, attending in the industrial engineering programme of the University
- **Technische Universität Ilmenau**
University courses
Ilmenau, Germany
2007
- **Silesian University of Technology**
University courses
Gliwice, Poland
2006 and 2007

PROFESSIONAL MEMBERSHIPS

- **Unified Psychological Research Ethics Committee of Hungary**
2015 – Present
- **International Commission on Illumination CIE**, Division of Image Technology
2014 – Present
- **Robotics & Ethorobotics Research Laboratory**, Department of Mechatronics, Optics and Mechanical Engineering Informatics
2013 – 2017

Software Developer at Garpex engineering Ltd.

2002 – 2005

Responsibilities: Software development and **web design**, administrative and organisational activities.

Building Services Engineering Assistant at Hopferwieser building engineering Ltd.

2000 – 2001

Responsibilities: Revision of complex **building engineering** plans, editing of **trail plans in AutoCAD**, preparing construction plans, site analysis, review of implementation.

Building Services Engineering Assistant at Légszervíz ventilation engineering 2000 Ltd.

1999 – 2000

Responsibilities: Revision of **industrial air ventilation system** plans, editing **trail plans in AutoCAD**, site analysis, preparatory design.

EDUCATION

PhD degree in Mechanical Engineering Sciences

Budapest University of Technology and Economics, Faculty of Mechanical Engineering, Department of Mechatronics, Optics and Mechanical Engineering Informatics

2006 – 2009

Filed of thesis: Human-machine-environment **system and effect analysis** of adaptive acceleration and deceleration displays for **automotive industry** (applied disciplines: **informatics** (tools: VB, LabView, C#), **ergonomics**, psychology, optics, mathematical statistic)

M.Sc. degree in Industrial Design Engineering

Budapest University of Technology and Economics, Faculty of Mechanical Engineering

2000 – 2005

Field of thesis: Design and implementation of **user interface** for a **medical device** (blood-type tester robot) (applied disciplines: **informatics** (tool: C++), **ergonomics**).

B.A. degree in Behavioural Analyst Psychologist

Károli Gáspár University of the Reformed Church in Hungary

2011 – 2014

Field of thesis: Optimal **leadership** style of R&D **engineering groups** for the best performance.

TOP SELF INITIATIVE PROJECTS

Insulin Tracker (Android and Windows Phone apps for diabetic people)

These apps help **diabetic people** to **find out** actual and predicted **insulin effect in their blood** (smart blood glucose management system), thus they need **less mental effort** to maintain the delicate glucose-insulin balance. With this assistance people with diabetes can **avoid life-threatening hyper- and hypoglycemia** and their life quality could be much better. The alpha testing in progress. (tools: C#, Xamarin, Java, Android Studio).

ProgramozásKarrier.hu (Bootcamp-like software developer courses and mentoring)

On this site we (with my partners) offer **programming courses, mentoring and coaching services** and **create** text-based (**articles and books**) and multimedia-based (**YouTube videos**) educational materials for people who want to start their **new career as a software developer** (tools: Python, JavaScript, HTML, CSS, C#).

LANGUAGES

- **English:** Advanced (Intermediate ex., No: 712551)
- **Italian:** Basic (Basic ex., No: 1094917)
- **Hungarian:** Native (Mother language)

PUBLICATIONS

List of my publications:

m2.mtmt.hu/api/author/10027614

- 2 international patents (2 more are in progress)
- 3 book chapters
- 16 peer-reviewed articles
- 24 conference articles

MOTIVATIONS

- Varied, challenging and value creating work that requires creativity,
- Team leading role, taking responsibilities,
- Opportunity for learning and self-development,
- International environment, traveling

INTERESTS

- Computer science,
- Programming,
- Artificial intelligence,
- Teaching,
- Natural sciences,
- Green technologies,
- Medical engineering,
- Psychology,
- Autonomous vehicles,
- Future science,
- Sport,
- Gastronomy,
- Travelling,
- Films