



Education:

1998-2005 Arpad Secondary School, special math faculty, Budapest
2002-2003 Regionale Scholengemeenschap Enkhuizen, The Netherlands
2005-2009 Budapest University of Technology and Economics, Faculty of Mechatronics BSc
Integrated Engineering Specialization in English
2009-2011 Budapest University of Technology and Economics, Faculty of Mechatronics MSc
Integrated Engineering Specialization in English
2013-: **PhD Student** at Budapest University of Technology and Economics, Department
of Mechatronics, Optics and Engineering Informatics.

Employment history:

2008: **Kitchen Budapest Media Lab**: Development of FPGA based display driver development.
I was responsible for hardware and FPGA firmware.
2009: **Hogskolen I Narvik University**, Norway: FPGA-DSP based industrial robot controller.
I worked on circuit and firmware developed for running central motion control algorithms.
2009: **MTA (Hungarian Academy of Sciences) – BME (Budapest University of Technology) – ELTE (Eötvös Loránd University)**: Development of a holonomic driven mobile robot for R&D cooperation of the three institutes. I have designed electrical circuit and firmware for motion control of three wheel driven mobile robot and handling wireless communication with external computer. (More: www.generalmechatronics.com/en/references/etorobot1)
2010: **AUDI Motor Hungaria Kft. – BME**: I have designed the schematics and DSP firmware of a motor diagnostic equipment, which connects directly to all signals of the electronic control unit (ECU), and during a measurement it logs all of them to a file on an SD card. (More: www.generalmechatronics.com/en/references/motor-diagnostic)
2011: **Hogskolen I Narvik University**, Norway: Real-time linux based robot and CNC controller.
An FPGA based PCI card was developed and built into LinuxCNC open-source project as real-time motion control unit and peripheral interface. My task was to create the schematics, implement the FPGA firmware and the Linux driver of the card.
2011-2012: **Ericsson Hungary Ltd.**, Software developer. Software design of network equipments.
2012-2013: **Ericsson Hungary Ltd.**, Hardware developer. Circuit, layout, signal integrity, power integrity, timing simulations.
2012- : **General Mechatronics Ltd.**, President, Development of mechatronics systems. (More: www.generalmechatronics.com/en/about)

Experiences, results:

- 2007-2008: Autonomous mobile robot design for international competition Eurobot2007 and Eurobot2008. The robot, designed with my colleague **reached 23rd place** out of 400 contestants. We got **2nd prize on the Hungarian National Scientific Student Conference**, and **6th prize in the competition of the exhibition Mechatronics and Robotics** in St. Petersburg.
- 2009: I designed and built a CNC controller. With my colleague we worked on developing a three axis motion controller unit for decentral motion control.
- 2009: Bence Kovács, Géza Szayer, Balázs Varga: *'Theory and practice of motion control in industrial robotics'*, October 2009, pp.44, **1st prize on Student Scientific Conference, Extra Prize from President of University**, and , **1st prize on national round of Student Scientific Conference**.
- At Ericsson I got experience in IP technology, and I took part in the design of complex electronics circuits.

Detailed documentation and videos of working CNC and robots can be seen on the website above.

Publications:

- Géza Szayer, Bence Kovács, Balázs Varga: "Universal robot controller", Workshop on Cognitive and Eto Robotics in iSpace CERiS'10, 2010. March
- Géza Szayer, Bence Kovács, Balázs Varga: "Etho-robot", Workshop on Cognitive and Eto Robotics in iSpace CERiS'10, 2010. March
- Géza Szayer, Bence Kovács, Balázs Varga, Péter Korondi: "RT Middleware based robot controller", Mechanical Engineering 2010 Conference, 2010. May
- Bence Kovács, Géza Szayer, Ferenc Tajti, Péter Korondi, István Nagy: "Robot with dog type behavior", 17th Int. Conference on Electrical Drives and Power Electronics The High Tatras, Slovakia 28–30 September, 2011
- Bence Kovács, Géza Szayer, Ferenc Tajti, Solvang Bjorn, Péter Korondi, "Design of a universal robot controller" In: International Engineering Symposium at Bánki, Budapest, Hungary, 2011.11.15. pp. 1-13.
- Kovács Bence, Szayer Géza, Tajti Ferenc, Devecseri Viktor, Korondi Péter, "Szociális robotok a 21. században: MOGI Robi a hűségese társ", In: Erdélyi Magyar Műszaki Tudományos Társaság. Kolozsvár, Románia, 2012.04.19. Kolozsvár: pp. 238-241.
- Bence Kovács, Géza Szayer, Ferenc Tajti: "Design of a universal robot controller", Mechanical Engineering 2012 Conference, pp. 249-262, Budapest 24-25 May, 2012

Software, hardware knowledge:

- **CAD,CAM:** Solid Works, Solid Edge, EdgeCAM, SolidCAM
- **Circuit design and simulation:** Cadence Allegro, Eagle, National Instruments: Multisim, Utiboard, SiSoft Quantum SI, SiSoft Quantum Channel Designer
- **Programming languages:** Basic, C, Verilog, VHDL, Java (basic level)
- **Operating Systems:** Windows, Linux + RTAI, VxWorks
- **Hardware development tools:** Visual Studio, ATMEL Studio, MPLAB, TI CC, IAR, Xilinx ISE, EDK
- **Embedded system design:** PIC, AVR, MSP430, TI DSP, ARM, Xilinx CPLD, FPGA
- **Measurement, simulation:** Labview, Matlab
- **Web editing:** Macromedia Flash, Drupal, Dreamweaver, Photoshop, Corel Draw

Languages: Hungarian (native), English, Dutch

Hobbies: Construct new things, orientation rally, water polo, box, visiting concerts, movies, travelling, meeting with new people from different cultures

Birth: 27th April 1985, Budapest, Hungary

Driving licenses: A(motorcycle), B(car)

Budapest, the 19st April, 2013

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Bence Kovács