

— SELECTED PROFESSIONAL EXPERIENCES —

Engineer at Google

- Software Engineer - Site Reliability Engineer
- Product Area: YouTube, responsibility: YT Homepage and recommendations

Zürich, Switzerland

2020 – Present

Lecturing at BME

- Assistant Lecturer and Teaching Assistant positions
- Lecturing in 7 subjects in English, Hungarian and German.
- Main areas: JavaScript/TypeScript, Angular, Android, other client side technologies, basics of informatics and programming (C, C++)
- Supervising M.Sc., B.Sc. theses, Students projects on 39 topics, including P2P systems, network coding and web development (PHP, JavaScript, Angular)

Budapest, Hungary

2010 – 2020

BME-AutSoft Ltd.

- Project Manager and technical consultant
- Project: VR / AR offloading to Mobile Edge Cloud for low latency 5G gaming application
 - Presented at [CeBit'17](#), Germany and [CES'18](#), USA
- Part-time Software Engineer
- Working in a team of 3-4 people
- Main projects, available at Google Play: Alpha online, E-course teacher, E-tutor

Budapest, Hungary

Feb 2017 – Jun 2017

2014 – 2016

Gravity Rock Solid Recommendation

- Junior Software Engineer
 - Working in a team of 3-4 people
 - Developing frontend in HTML5, Java and C#

Budapest, Hungary

Jul 2013 – Sep 2013

Jul 2012 – Sep 2012

Jul 2011 – Sep 2011

Other Projects

- Creator of PiGallery2 (github.com/bpatrik/pigallery2)
 - Focus: A photo gallery with heavily optimized, feature rich backend to run on a Raspberry Pi and a carefully designed UI
 - 46 945 LOC
 - Technologies: TypeScript, Angular, NodeJS, Mocha, Karma, Travis CI, Docker
- Online Calendar and Photobook editor and webshop (www.fotokonyvexpressz.hu)
 - Main developer and manager
 - Responsible for 18 200 LOC
 - Technologies: PHP, TypeScript, Sql

2016 – Present

2014 – 2017

— EDUCATION —

PH.D. IN COMPUTER SCIENCE – BME, TUD AND MIT

2015 – 2020

Massachusetts Institute of Technology (MIT)

Cambridge, MA, USA

- Invited Research Fellow
- Fulbright Visiting Student Researcher
 - Group: The Network Coding and Reliable Communications Group; Supervisor: Prof. Murel Médard
- Project 1: Constructing analytic model for studying throughput of multi-source source, single sink networks [5]
 - Techniques: Network coding, Hidden Markov model, Probability Generating Function
- Project 2: Designing multi-source protocols and measuring their throughput through YouTube video downloads [4]
 - Measurements run for eleven months on multiple continents
- Project 3: Improving Google QUIC protocol with network coded forward error correction [1]

Jan 2019 – Feb 2019

2017 – 2018

Dresden University of Technology (TUD)

Dresden, Germany

- Participating in the dual Ph.D. program between BME and TUD
 - Group: Deutsche Telekom Chair of Communication Networks; Supervisor: Prof. Frank Fitzek
- Project 1: Investigating Android energy consumption
- Project 2: Study and Deployment of Mobile Edge Cloud for Tactile Internet using 5G Gaming application [7]
 - Presented at: 5G Summit'16, [IFA'16](#), Germany and [CES'17](#), USA
- Project 3: Network coding enhanced browser-based Peer-to-Peer streaming [2] [6] [8]
 - Presented at: 5G Summit'15, 5G Summit'16, Germany and [CES'17](#), USA

Jul 2017 – Aug 2017

Jul 2016 – Sep 2016

Jul 2015 – Sep 2015

Budapest University of Technology and Economics (BME)**Budapest, Hungary**

- Home institute (with TUD)
 - Group: Department of Automation and Applied Informatics; Supervisor: Dr. Péter Ekler
- Focus: Network Coding, distributed systems, edge cloud systems, web applications

M.SC. IN SOFTWARE ENGINEERING – BME**2013 – 2015****Budapest University of Technology and Economics (BME)****Budapest, Hungary**

- Group: Department of Automation and Applied Informatics; Supervisor: Dr. Péter Ekler
- Honours degree, degree GPA: 4.9 / 5.0
- Research project on investigating Android energy consumption
- Thesis: The Analysis of Distributed Data Sharing with Network Coding Technology

B.SC. IN SOFTWARE ENGINEERING – BME AND KIT**2009 – 2013****Budapest University of Technology and Economics (BME)****Budapest, Hungary**

- Language of the program: German
- Excellent degree, degree GPA: 4.65 / 5.00
- Research project on creating simulators for cellular networks

Karlsruhe Institute of Technology (KIT)**Karlsruhe, Hungary**

- Part of BME-KIT dual degree program

Oct 2011 – Feb 2012

— SELECTED PUBLICATIONS AND PATENTS (8 out of 20)**PATENTS**

- [1] M. Médard, L. Jánoki, Patrik J. Braun, “System and Technique for Generating, Transmitting and Receiving Network Coded (NC) QUICK UDP Internet Connections (QUIC) Packets”, PCT/US18/59340, Sep 2018.

PUBLICATIONS

- [2] Patrik J. Braun, A. Budai, J. Levendovszky, M. Sipos, P. Ekler, and F. H. P. Fitzek, “Mobile Peer-to-Peer Assisted Coded Streaming”, in *IEEE Access*, IF*: 4.098, 2019
- [3] Patrik J. Braun, M. Médard, P. Ekler, “Practical Evaluation of Multisource Coded Downloads”, in *IEEE Access* 7, IF*: 4.098, 2019
- [4] Patrik J. Braun, D. Malak, M. Médard, P. Ekler, “Enabling Multi-source Coded Downloads”, in *IEEE EDGE 2019*, Milan, Italy, Jul 2019.
- [5] Patrik J. Braun, D. Malak, M. Médard, P. Ekler, “Multi-source Coded Downloads”, in *IEEE ICC 2019*, Shanghai, China, Apr 2019.
- [6] Patrik J. Braun, M. Sipos, P. Ekler, F. H.P. Fitzek, “On the Performance Boost for Peer To Peer WebRTC-based Video Streaming with Network Coding”, in *IEEE ICC 2017*, Paris, France, May 2017.
- [7] Patrik J. Braun, S. Pand, Robert S. Schmoll, F. H.P. Fitzek, “On the Study and Deployment of Mobile Edge Cloud for Tactile Internet using a 5G Gaming application”, in *IEEE CCNC 2017*, Las Vegas, USA, Jan 2017.
- [8] Patrik J. Braun, P. Ekler, F. H.P. Fitzek, “Demonstration of a P2P assisted video streaming with WebRTC and Network Coding”, in *IEEE CCNC 2017*, Las Vegas, USA, Jan 2017.

— SELECTED HONORS AND AWARDS (9 out of 13)

Fulbright scholarship to MIT (2018) • Rosztochy scholarship to MIT (2018) • Demonstration Award at CCNC’17, Las Vegas (2017) [8] • The German Academic Exchange Service (DAAD) scholarship to KIT (2011) • 2x Fellowship granted by the Hungarian Republic (2011, 2014) • 2x Faculty scholarship at BME (2011, 2014)

— OTHER

Languages: Hungarian (native) • English (C1 certificate) • German (B1 certificate)

Technical Skills: Typescript • HTML5 • Angular • jQuery • WebRTC • NodeJs • Docker • Android • Java • Network Coding • UML • GIT • \LaTeX • SQL

Soft Skills: Presentation • Management • Leadership skills

Interests: Competitive ballroom dancing • Photography • Video editing • Outdoor activities (skiing, hiking, biking, running)

[updated on 2021-05-10]